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Idaho National Engineering and Environmental Laboratory

The INEEL Environmental Management Accelerating Cleanup: Focus on 2006, Discussion Draft

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Assistant Secretary for Environmental Management
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EXECUTIVE SUMMARY

Idaho Operations/Field Office Overview

Environmental Management work at the Idaho National Engineering and Environmental Laboratory (INEEL) is performed on a site that encompasses 890 square miles in the Snake River Plain of Southeastern Idaho. This *INEEL Environmental Management Accelerating Cleanup: Focus on 2006, Discussion Draft*, hereafter referred to as the Discussion Draft, addresses all Environmental Management Program activities at the INEEL except: those underway at the Argonne National Laboratory-West which are administered by the Department of Energy (DOE)-Chicago Operations Office and those at the Naval Reactors Facilities which are administered by the Navy. Because the Environmental Management Program activities at Argonne National Laboratory-West are closely integrated with INEEL activities in support of DOE commitments, brief summaries of those activities are included in this report. Details of those activities can be obtained in the DOE-Chicago Operations Office Environmental Management Discussion Draft.

The document depicts an optimized Environmental Management Program in Idaho which meets compliance requirements, maximizes risk reduction, and completes the Environmental Management mission at the lowest possible life-cycle cost. The INEEL is committed to accomplishing cleanup and achieving the maximum progress possible by 2006. To achieve that goal, INEEL will complete cleanup of several waste streams and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remediation sites by FY-2006, while pursuing longer-term projects to accomplish cleanup of transuranic and high-level wastes, spent nuclear fuel disposition, and closure of remaining CERCLA remediation sites after FY-2006. Maintaining full compliance with applicable requirements and agreements is the foundation of the Discussion Draft. This Discussion Draft reflects the DOE commitments outlined in the Idaho Settlement Agreement, the Federal Facility Agreement/Consent Order (FFA/CO), the INEEL Site Treatment Plan, and other Consent Orders.

Several assumptions are key to achieving the final end state at the INEEL. The funding scenarios depicted in this document assume that the Waste Isolation Pilot Plant will open in FY-1998 as currently planned and will accept pre-1970 transuranic waste by FY-2004. It also assumes that a federal facility will be available by 2015 as a final repository for spent nuclear fuel and high-level waste. The current life-cycle plan assumes that funding will be available as needed to complete compliance work at the INEEL.

INEEL Program Goals

The Department of Energy-Idaho Operations Office (DOE-ID) has set a clear goal for the Environmental Management mission: *Finish it!* Four Environmental Management programs are in place at the INEEL to accomplish that objective:

1. The **Waste Management Program** will treat, store, and dispose of low-level waste, mixed low-level waste, transuranic waste, and high-level waste in compliance with agreements, the Site Treatment Plan, etc.

2. The **Environmental Restoration Program** will remediate all FFA/CO identified contaminated land/facilities as determined under CERCLA. Contaminated facilities used for previous INEEL nuclear reactor testing, spent nuclear fuel reprocessing, and waste treatment, storage, and disposal will undergo decontamination and dismantlement (D&D).

3. The **Nuclear Materials and Facilities Stabilization Program** will receive and store spent nuclear fuel until final disposition. This includes moving all spent nuclear fuel from wet to dry storage by 2006.

4. The **Infrastructure and Deactivation Programs** ensure adequate infrastructure support for the above mentioned programs.

In addition to completing the Environmental Management mission in Idaho, the INEEL has prepared a Long-Range Plan which will transform the laboratory from a DOE Multi-Program National Laboratory focused on site cleanup to a National Multi-Program Engineering and Environmental Laboratory with the following goals:

1. Provide engineering and technology leadership to DOE by building from and strengthening other environmental programs,

2. Expand support to other agencies and selected industries,

3. Reduce the global environmental threat,

4. Execute national missions of DOE and other agencies, and

5. Leverage technology investment via industrial collaborations.

Two projects included in this Discussion Draft request budget authorization for the construction of new facilities which are critical to INEEL's transition to a National Multi-Program Environmental Laboratory.

INEEL Environmental Management Life-cycle Costs

INEEL Environmental Management work has an estimated life-cycle cost of $16.9 billion (unescalated) and will require more than 40 years to complete. Figure 1 shows the escalated and unescalated cost estimates for the Environmental Management Program at the INEEL. The INEEL has been active in identifying strategies that have reduced life-cycle cost estimates, while accelerating program completion. To date, Environmental Management planning and integration initiatives have resulted in savings of about $12.4 billion from the Baseline Environmental Management Report (BEMR) 95 life-cycle cost estimates and the cleanup schedule for the INEEL has been accelerated by decades. The schedule for high-level waste completion has been accelerated by 40 years; spent nuclear fuel by 25 years, and transuranic waste by 6 years. Figure 2 displays the comparison of the unescalated life-cycle costs of BEMR 95 and BEMR 96 with the unescalated life-cycle costs of this Discussion Draft.

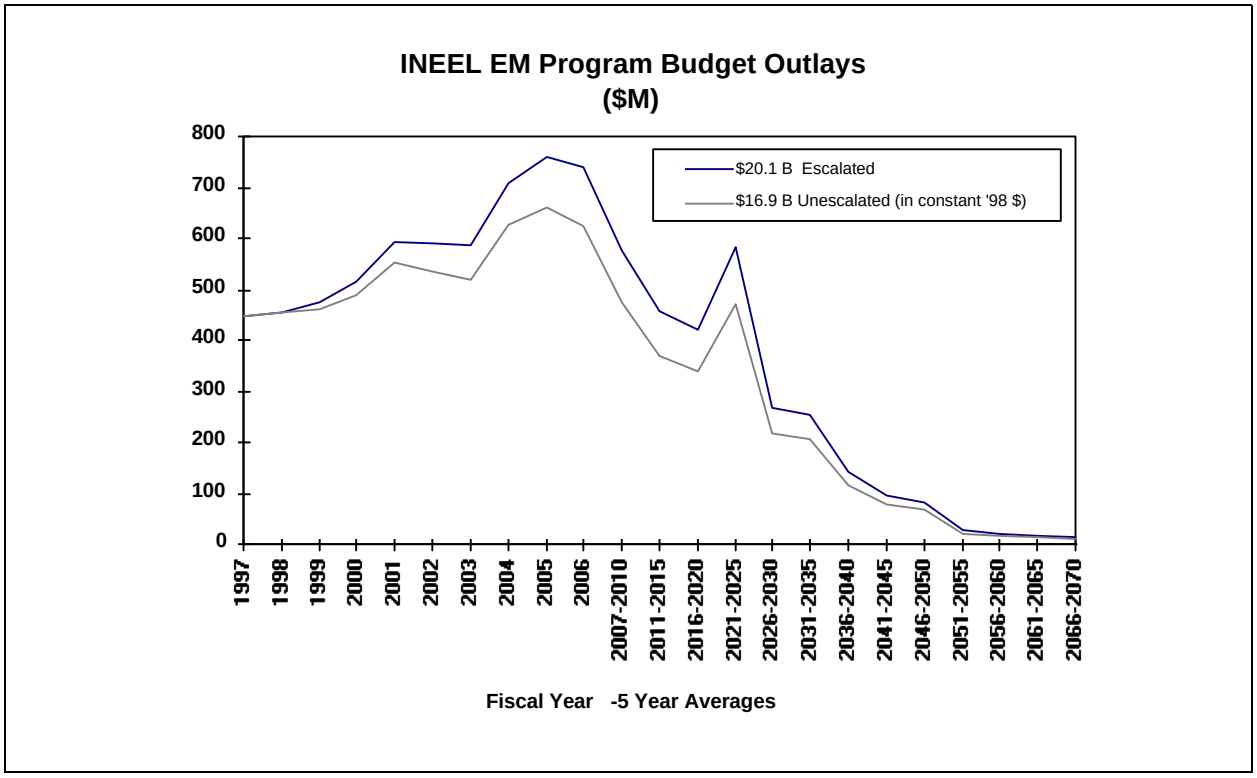

Figure 1. INEEL Environmental Management Program Budget Outlays

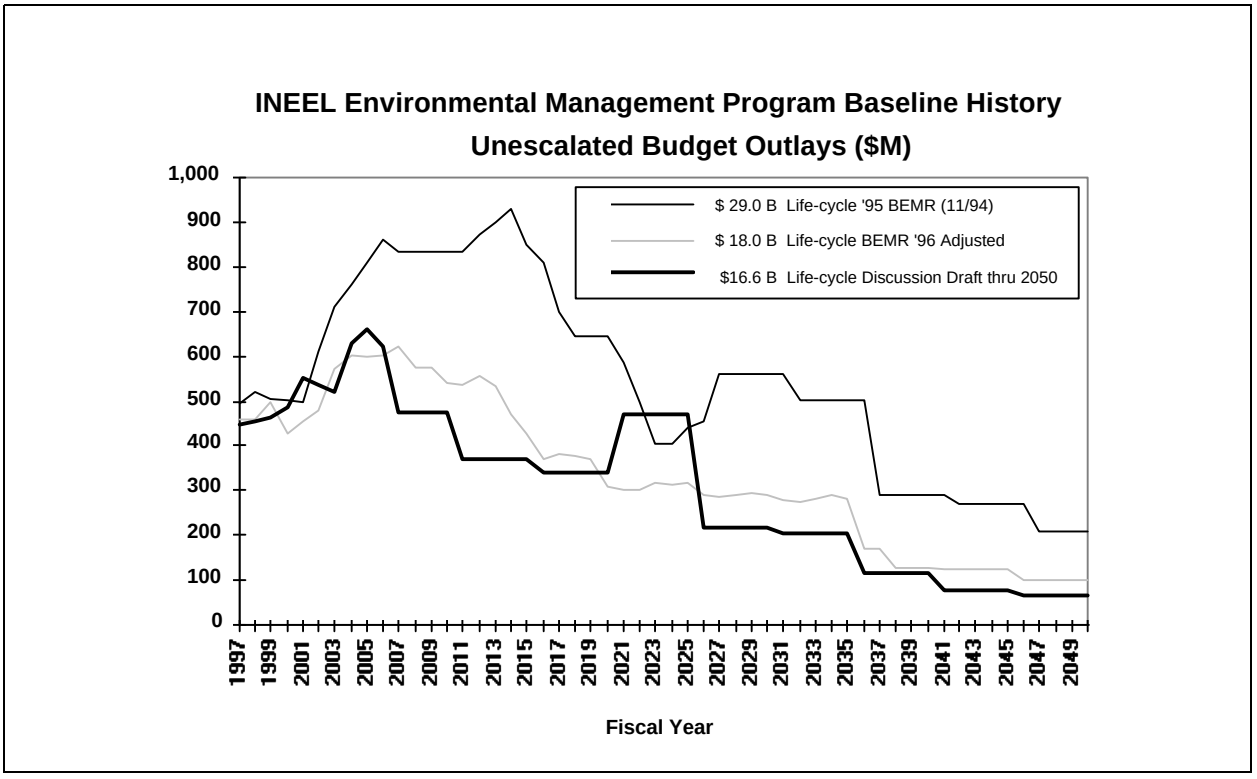

Figure 2. INEEL Environmental Management Program Baseline History Unescalated Budget Outlays

INEEL's FY-2006 Cleanup Status

By FY-2006, the INEEL will complete 27 of 52 planned Project Baseline Summary projects, while accomplishing the work associated with 61 enforceable milestones.

Low-level, Mixed Low-level, and Transuranic Wastes

Disposal of contact handled low-level waste at the Radioactive Waste Management Complex is ultimately limited by the physical capacity of that facility. This capacity is also potentially limited by the total amount of radioactivity disposed of at the facility in accordance with ongoing performance evaluations, in light of the continuing need for disposal of INEEL low-level waste beyond FY-2006, DOE is reviewing the technical, economical, and other related issues surrounding continued disposal at the Radioactive Waste Management Complex or elsewhere at the INEEL as well as investigating alternative disposal sites that meet applicable regulations. Any such reviews and subsequent planning will be coordinated with waste generators who currently rely on waste disposal at the Radioactive Waste Management Complex, to ensure their needs are supported.

Remote handled low-level waste disposal operations will likely continue at the Radioactive Waste Management Complex post FY-2006. These operations will accommodate the receipt and disposal of remote handled low-level waste until an acceptable off-site disposal location is operational that meets regulatory requirements and any associated transportation issues are resolved.

Mixed low-level waste treatment operations at the Waste Experimental Reduction Facility cease in FY-2003. At this time, the Advanced Mixed Waste Treatment Project will come on line and treat newly generated mixed waste for the INEEL. The Waste Experimental Reduction Facility Resource Conservation and Recovery Act (RCRA) closure will be completed by FY-2006. By 2006, the Advanced Mixed Waste Treatment Project will be processing approximately 5,000 cubic meters of waste per year.

The Transuranic Waste Project will ship approximately 3,100 cubic meters of waste out of the State of Idaho to the Waste Isolation Pilot Plant by December 31, 2002. The Advanced Mixed Waste Treatment Project facility construction will be complete in FY-2003 when it will begin to handle the remaining approximately 62,000 cubic meters of stored transuranic waste. Figure 3 shows the low-level, mixed low-level, and transuranic waste life-cycle budget/cost (budget authority [BA]/budget outlay [BO]).

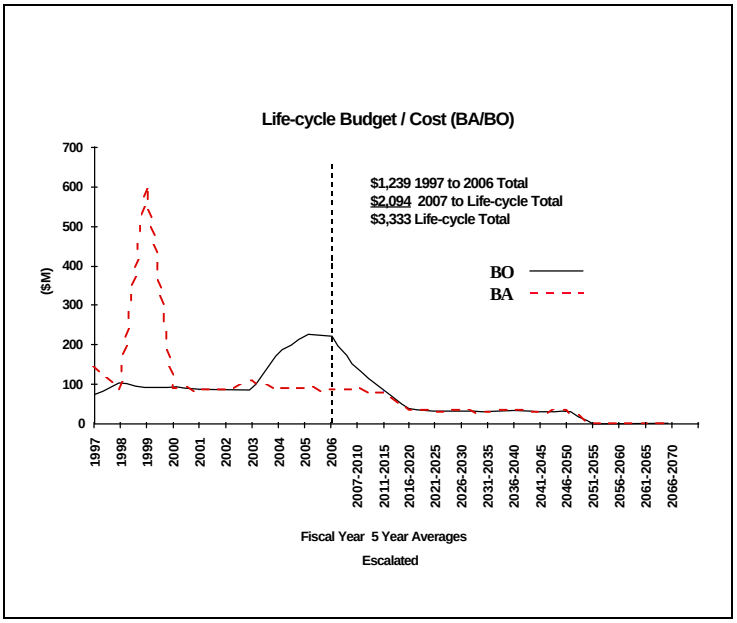

Figure 3. Low-level, Mixed Low-level, and Transuranic Waste

High-level Waste

The high-level waste projects will calcine 3827 cubic meters of sodium and non-sodium bearing liquid waste to 1546 cubic meters of granular solids by 2006. Figure 4 shows the high-level waste life-cycle budget/cost (BA/BO).

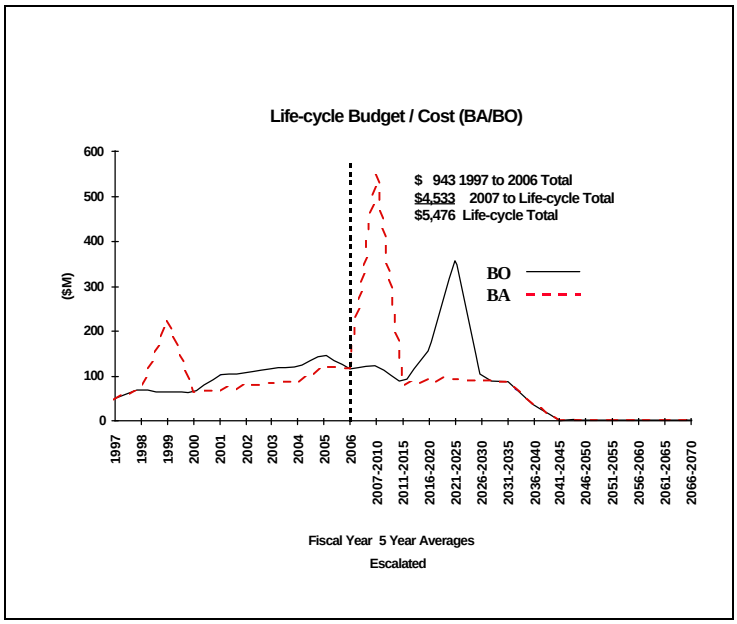

Figure 4. High-level Waste

Spent Nuclear Fuel

By the end of FY-1998, all spent nuclear fuel will be transferred out of CPP-603. Three Mile Island fuel will be transferred from underwater storage at Test Area North to new dry storage at the Idaho Chemical Processing Plant by FY-2001. Construction of the Spent Nuclear Fuel Dry Transfer Station will be complete in FY-2003 allowing Phase I fuel types to be placed into new dry storage. By FY-2006, all DOE-owned fuel at the INEEL will be transferred from wet storage to dry storage in existing or new dry storage facilities. Figure 5 shows the spent nuclear fuel life-cycle budget/cost (BA/BO).

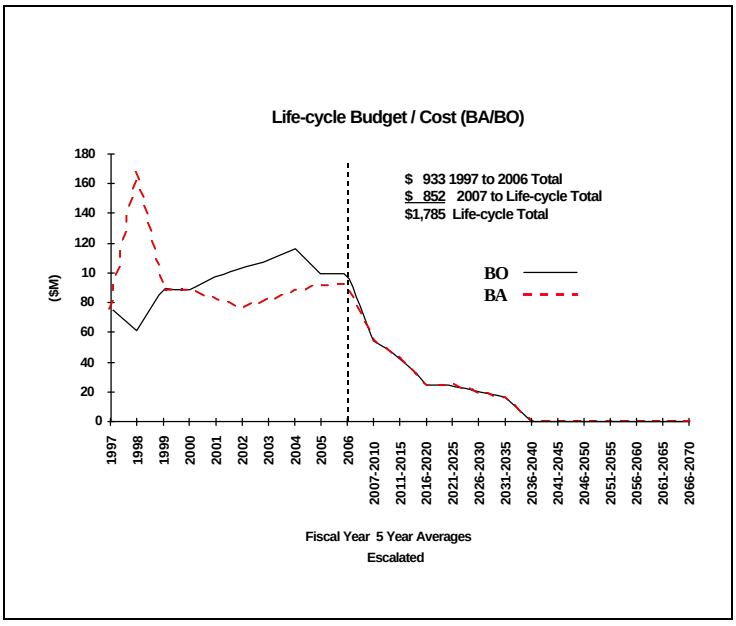

Figure 5. Spent Nuclear Fuel

Environmental Restoration (Closure)

Although remediation and closure continues beyond FY-2006, all Records of Decision (ROD) will be negotiated by FY-2000 and remediation will be essentially complete in six of the eight INEEL Waste Area Groups (WAG) addressed in this plan by FY-2006. Long-term groundwater pump and treat operations will continue through 2025 at WAG 1. Cap construction and long-term monitoring and maintenance will continue at WAG 3. The

Transuranic Waste Pits and Trenches (WAG 7) may have significant remediation work to complete after FY-2006. D&D of surplus facilities will continue through 2044. Figure 6 shows the Environmental Restoration (Closure) life-cycle budget/cost (BA/BO).

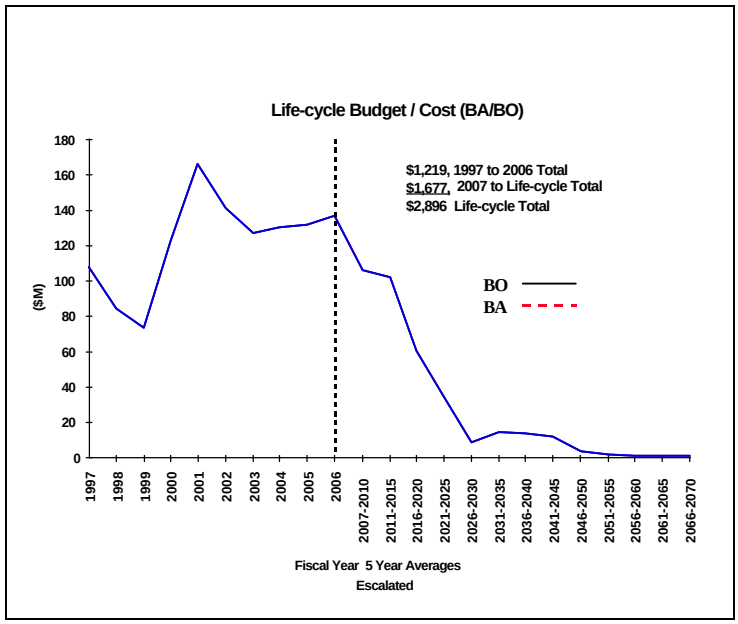

Figure 6. Environmental Restoration (Closure)

Infrastructure and Deactivation

The INEEL has environmental management and cleanup activities that continue beyond FY-2006 and Infrastructure projects must continue at a level adequate to ensure the integrity of required facilities for the period required to complete all commitments. Six Infrastructure Line Item Construction Projects will be completed by FY-2002 to provide infrastructure continuity. Eight additional proposed Line Item Construction Projects are identified and will complete by FY-2006, if approved. In addition, multiple General Plant Projects, General Purpose Capital Equipment acquisitions, and selected line items will be necessary to assure adequate infrastructure throughout the Environmental Management mission life cycle.

INEEL has several mortgage reduction/closure projects planned to ensure that the final end state is achieved in the most cost effective manner. The Advanced Reactivity Measurement Facility, the Power Burst Facility, and Materials Test Reactor canal will be ready for decontamination and closure by FY-2006. Also by that date, several Idaho Chemical Processing Plant buildings, the Waste Calcining Facility, CPP-601, CPP-603, CPP-640, and CPP-627, will be dispositioned. Figure 7 shows the Infrastructure and Deactivation life-cycle budget/cost (BA/BO).

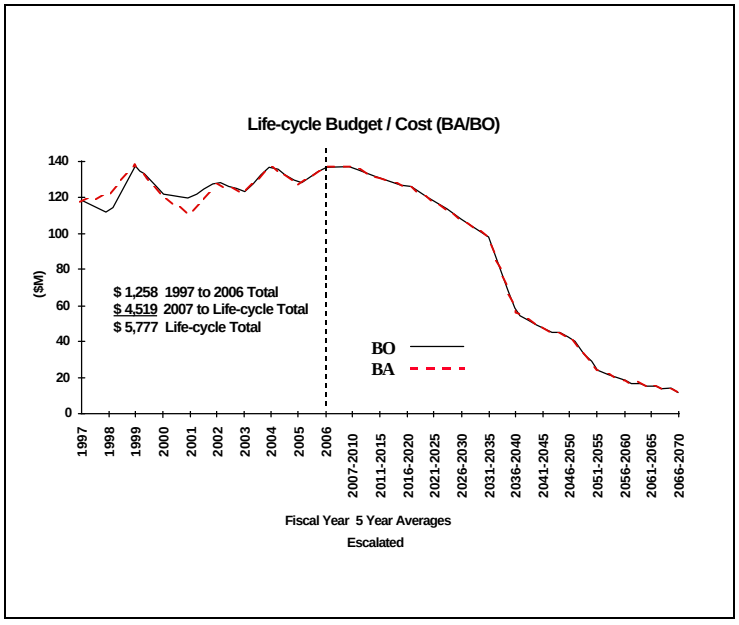

Figure 7. Infrastructure and Deactivation

INEEL's Final End State

The INEEL's final end state is described in the *INEL Comprehensive Facilities and Land Use Plan* issued March 1996. With completion of the projects identified in this Discussion Draft, the INEEL will be restored to industrial and open space use standards (ordnance on the site may require deed restrictions). This degree of cleanup supports the 100 year future land use projection analysis, which indicates no residential use of the INEEL within the next 100 years. INEEL's end state objective is to complete cleanup per FFA/CO requirements and disposition all waste and other materials in accordance with existing and future agreements.

The Idaho Settlement Agreement contains several milestones key to the INEEL reaching its final end state. Following is a list of the key milestones contained in the Idaho Settlement Agreement.

- The first shipments of transuranic waste from the INEEL to the Waste Isolation Pilot Plant shall begin by April 30, 1999.

- No less than 3,100 cubic meters of transuranic waste shall be shipped out of the State of Idaho by December 31, 2002.

- Removal of spent nuclear fuel from the State of Idaho by January 1, 2035.

- DOE shall commence calcining sodium-bearing liquid high-level waste by June 1, 2001 and be completed by December 31, 2012.

- All high-level waste currently stored at the Idaho Chemical Processing Plant will be treated and ready for disposal by 2035.

Funding and Cost Challenges

One of the key challenges facing the Environmental Management Program is to achieve program commitments in an era of declining budgets. The Government is striving to balance the national budget by 2002 and this has resulted in level funding targets, with no increases for inflation for the Environmental Management Program during the next ten years. To address this, the INEEL has incorporated cost savings expected from the re-engineering of some of the existing management processes of $80 million into the Program Baseline estimates for the period thru FY-2002. The INEEL has further committed to the redirection of $33 million in support costs, to be applied to further accelerating cleanup. Additionally, a $50 million efficiency challenge has been set for the period from FY-1999 thru FY-2003. Any additional efficiencies achieved will be reinvested at the INEEL to further accelerate cleanup and reduce mortgage costs. Even with these expected cost savings, based on current estimates, the outyear funding targets show a total funding shortfall of $129 million for the period of FY-1998 thru FY-2003.

This $129 million shortfall is based on the assumption that the capital asset portion of Privatization Funding (BA) and Outlays (BO) would not be addressed within the INEEL's base Environmental

Management program funding targets. As this Discussion Draft was developed, a concern has been raised that privatization outlays may have to be scored against the base program funding available. This would create a very difficult, if not impossible situation that is not currently provided for in the funding scenarios depicted in this document.

The Assistant Secretary for Environmental Management has assured INEEL and stakeholders that DOE will meet compliance with all enforceable agreements. To this end, as the Draft 2006 Plan funding scenario is developed, options will be explored to close funding shortfalls. These options include transferring funds from other sources to the INEEL, identification of further program and support efficiencies, and critical analysis of estimates. Both DOE-HQ and INEEL expect to fully resolve any funding shortfalls prior to finalizing the Initial 2006 Plan in early 1998. For years beyond FY-2003, there currently appears to be adequate budgetary resources within the DOE Environmental Management's flat funding profile at the $6.0 billion level to accomplish the INEEL program. This condition results from near term completion of cleanup at other DOE sites, which allows shifting of funding resources to INEEL.

Path Forward/Site-specific Strategies

The INEEL has implemented a contracting philosophy which incentivizes the contractor to develop a results oriented program to complete Environmental Management work safely, on or ahead of schedule, and within or below estimated costs while continuously looking for and implementing productivity improvements. In keeping with the objective to finish Environmental Management work, the site is enhancing cost and schedule management techniques to improve program management effectiveness. Implementation of additional Performance Measures tied to incentive fees will be another positive step toward more effective operations.

Additionally, DOE-ID has employed the U.S. Army Corps of Engineers to work jointly with Lockheed Martin Idaho Technologies Company (LMITCO) to perform critical analysis of the INEEL Environmental Management Program cost estimates. This effort will focus on identifying costs savings through elimination of duplicated or unnecessary work and will assist in improving cost estimating methodology. Assessments scheduled for FY-1997 will review costs, schedules, deliverables, and requirements in five key areas including indirect costs, Waste Experimental Reduction Facility incinerator operations, transuranic waste preparation and shipping, WAG 7 (pits and trenches) remediation, and high-level waste treatment. The assessment process will examine these projects in depth and provide recommendations for cost reductions and/or restructuring of work activities to produce more cost efficient operations. The INEEL plans to continue with this critical assessment activity until all project baselines have been independently scrutinized, with the expectation that this process will identify substantial cost savings.

The INEEL is also pursuing several privatization projects which increase accountability and eliminate duplication of activities in the government system resulting in savings to the taxpayer. Several projects have been identified that show potential savings in life-cycle cost estimates associated with privatization. An example of a privatized project is the Advanced Mixed Waste Treatment Project, awarded in December 1996, is expected to save $670 million (unescalated) over previous cost estimates for that same work. The proposed President's FY-1998 Budget requests funding for three additional privatization projects at the

INEEL, which could result in cost savings of over $134 million. Examples include the Low Activity Waste Treatment Project and the Spent Nuclear Fuel Dry Storage Project. This Discussion Draft also identifies a future privatization project for the High-level Waste Immobilization Facility. The INEEL will continue to evaluate privatization alternatives as a means to achieve more efficient and effective results.

Complex-wide Integration

Eleven major DOE site contractors are chartered by the Assistant Secretary to develop and evaluate cost saving opportunities across the DOE Complex. This initiative, known as Complex-wide Environmental Management Integration, is led by the INEEL and considered a key element in achieving the Environmental Management Program vision. The integration effort is based on systems engineering principles of defining requirements, developing alternatives for meeting those requirements, and then applying well defined criteria for selection of alternatives. Through this prescriptive process, the Complex-Wide Environmental Management Integration initiative provides sound technical alternatives for DOE and stakeholder consideration.

The effort is focused on disposition of the following waste streams and materials: transuranic waste, mixed low-level waste, low-level waste, hazardous waste, high-level waste, spent nuclear fuel, and the environmental restoration programs. Waste volumes and locations, treatment options, and storage and disposal facilities were evaluated, as were transportation systems and technology development issues. This analysis will be used to support further analysis of alternatives which can be used to accelerate cleanup while reducing costs. Consistent with the Discussion Draft Planning and NEPA Process, these alternatives will require input and discussion with the regulatory agencies and stakeholders.

Complying with the National Environmental Policy Act

DOE-ID will ensure compliance with the NEPA and other applicable Federal, State of Idaho, and local environmental laws, regulations, and DOE Orders through adherence to DOE Order 451.1 and LMITCO MCP-469. DOE-ID will prepare appropriate NEPA documentation to evaluate currently planned, proposed, future action at the INEEL. Other activities, such as the proposed INEEL Environmental Engineering and Science Center Project, will be evaluated using Environmental Assessments. These and other environmental documents will tier from the existing *Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statements (EIS)*. Projects beyond the two-year DOE-ID *Annual National Environmental Policy Act Planning Summary* would be discussed in DOE-ID's NEPA Planning Board Meetings to decide the best strategy to ensure compliance with Federal, State of Idaho, and local regulations and requirements.

Safety and Health

The INEEL is committed to perform all work in a safe and healthful manner. This means compliance with all applicable Federal, State and local laws, regulations, rules, and standards relating to safety and health. However, the INEEL safety and health program goes beyond routine compliance, it also incorporates the

DOE Voluntary Protection Program. The Voluntary Protection Program is demonstrated by management leadership and employee involvement resulting in a very proactive safety culture. It is expected that INEEL employees, as well as subcontractors, visitors, and vendors who perform work activities at the INEEL, perform at this level of safety excellence. Safety is a value at the INEEL, and is looked at as a positive, cost effective way of producing quality products in support of INEEL missions.

Intersite/Interstate Interactions

Several INEEL Environmental Management projects rely on intersite and interstate cooperation. Opening of the Waste Isolation Pilot Plant is critical to achieving the transuranic waste project commitments to the State of Idaho. If this commitment is not met, the State of Idaho is prepared to stop INEEL receipts of DOE-owned spent nuclear fuel which will severely impact the planning in several states. Likewise, readiness of a final geologic repository for spent nuclear fuel and high-level waste is also key to achieving the final INEEL end state.

Spent nuclear fuel shipments will be received at the INEEL from various DOE sites, universities, and foreign research reactors for consolidation in preparation for final off-site disposition. Large volumes of low-level waste will be shipped to various off-site commercial treatment facilities. All transuranic waste will be shipped to the Waste Isolation Pilot Plant. Mixed low-level waste will be shipped to the Oak Ridge Reservation. Some spent nuclear fuel will be shipped to Savannah River for consolidation and final disposal. The remaining spent nuclear fuel and all vitrified high-level waste will be shipped to a Federal Repository for disposal.

Costs and regulations associated with transporting fuel or waste between states need to be managed with a consistent approach to ensure that the accelerated cleanup vision is achieved. It is difficult to estimate the costs of moving spent nuclear fuel from foreign research reactors to the INEEL because of the complexity of dealing with a multitude of foreign governments. A National Transportation initiative is proposed in the INEEL Long-Range Plan which would address these transportation issues.

Stakeholder Involvement

Beginning with the Environmental Management Assistant Secretary video-conference on June 26, 1996 with members of the public to kick off the accelerated cleanup planning effort, stakeholder involvement has been central to INEEL's planning process. The Citizens Advisory Board and other stakeholder groups have been briefed and provided specific recommendations. Letters from DOE-ID management were sent to key stakeholders inviting them to participate in meetings and briefings. Note cards, newspaper ads, news releases, toll-free telephone access, and opportunities for communicating information have been used to involve Idaho stakeholders, and to solicit public interaction. Comments received during the public comment period on the July 1996 version of the draft Ten-Year Plan have been assessed and some are reflected in specific changes incorporated in this Discussion Draft.

The INEEL has three goals for involving stakeholders in preparing the Discussion Draft. These are:

1. continue to inform stakeholders about environmental management projects at the INEEL;

2. continue to involve stakeholders in dealing with changes in the INEEL's environmental management work and budget allocations; and

3. continue the process that includes stakeholder participation and provides feedback concerning stakeholder interests.

According to Al Alm, Assistant Secretary for Environmental Management, "We cannot succeed in the critically important endeavor without strong public and institutional support." INEEL stakeholders are encouraged to get involved in planned activities by commenting on this, the national Discussion Draft, and other sites Discussion Drafts during the 90-day comment period. Please note that comments must be submitted by the end of the comment period, September 9, 1997. Tours of INEEL facilities and briefings with INEEL project managers is also encouraged. Workshops and information exchanges with the public, regulators, and Tribes are being planned during the comment period. Reviewing the Discussion Drafts and attending information sessions are effective ways for stakeholders to interact and influence the Environmental Management path forward at the INEEL. Specific details of these workshops and information exchanges will be forth coming.

Additional information and requests for briefings or discussions can be arranged by calling the INEEL's toll-free citizens' inquiry line at 1-800-708-2680. The Discussion Draft document will be available on the INEEL's website at "www.inel.gov/documents" and instructions on how to submit comments via the Internet will be included. Written comments on the INEEL Discussion Draft may be submitted to:

Accelerating Cleanup: Focus on 2006, Discussion Draft Coordinator
DOE-ID Environmental Management Program
P.O. Box 2047
Idaho Falls, ID 83403-2047

The Office of Environmental Management is asking the public to help it formulate a long-term approach to cleaning up the weapons complex, and to help it resolve issues that have often been submerged in the past. Environmental Management is focusing on ways to increase efficiencies and make the best use of its resources across the Environmental Management Program. For additional information or questions regarding the national Discussion Draft call 1-800-736-3282 or E-mail at FocusOn2006@EM.DOE.GOV (not case sensitive). Comments focused on issues related to the national Discussion Draft or concerning cross-site or policy issues should be submitted directly to the Environmental Management Program at the following address:

U.S. Department of Energy
Mr. Gene Schmitt
P.O. Box 44818
Washington, D.C. 20026-4481
E-mail address: FocusOn2006@EM.DOE.GOV (not case sensitive)
Call (800) 736-3282 to request a copy of the national Discussion Draft

CONTENTS

ACRONYMS

BA	Budget Authority
BEMR	Baseline Environmental Management Report
BO	Budget Outlay
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
D&D	Decontamination and Dismantlement
DOE	Department of Energy
DOE-HQ	Department of Energy-Headquarters
DOE-ID	Department of Energy-Idaho Operations Office
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FFA/CO	Federal Facility Agreement and Consent Order
FY	Fiscal Year
IDHW	Idaho Department of Health and Welfare
INEEL	Idaho National Engineering and Environmental Laboratory
LMITCO	Lockheed Martin Idaho Technologies Company
NEPA	National Environmental Policy Act
OU	Operable Unit
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
TBD	To Be Determined
WAG	Waste Area Group

1. INEEL DISCUSSION DRAFT INTRODUCTION

1.1 Purpose

In July of 1996, Assistant Secretary Al Alm established the goal of completing as much cleanup as possible within ten years. Further, this goal was to be achieved within a federal budget environment aimed towards balancing the federal budget by 2002. Balancing the federal budget is expected to cause some adverse impact to the future levels of funding available for the Environmental Management Program. The Idaho National Engineering and Environmental Laboratory (INEEL) shares in the vision and is committed to reducing the overall cost of completing the Environmental Management mission. Additionally, INEEL places a high priority on compliance with environmental laws, regulations, agreements, nuclear safety rules, standards, and other applicable requirements. This *INEEL Environmental Management Accelerating Cleanup: Focus on 2006, Discussion Draft*, hereafter referred to as the Discussion Draft, reflects this overarching commitment to compliance.

1.2 Approach

To help implement the Discussion Draft, the Environmental Management Program is transitioning to a streamlined, focused management approach. The cornerstone of this management approach is the Integrated Planning, Accountability, and Budgeting System. The central theme of this system is identifying and achieving clearly defined end states for the Department of Energy (DOE) wastes, excess nuclear facilities and materials, and environmental restoration activities. All Environmental Management activities have been reorganized into projects. Projects are individual or groups of similar and/or associated activities that have a defined scope, schedule, and cost supporting a defined end-state. Projectizing has helped clearly define relationships between the planning, budgeting, and management elements of the management structure. Individual summary level documents, called Project Baseline Summaries, have been developed to describe each of the projects at the INEEL, which comprise the Department of Energy-Idaho Operations Office (DOE-ID) Environmental Management Program addressed in this Discussion Draft.

This Discussion Draft is a life-cycle plan intended to describe a path for accelerating environmental restoration and cleanup efforts at the INEEL and progressing as much as possible within a ten-year period. Additionally, this plan provides a vehicle for identifying how to work smarter and faster, and for communicating a sense of purpose and direction to INEEL stakeholders. It is important to note that this plan is a discussion draft, not a decision making document.

1.3 What Follows: Guide to the Document

This document details plans by the DOE-ID Environmental Management Program for managing waste and cleaning up contamination produced by past activities at the INEEL. This Discussion Draft provides scope, schedule, and cost for designated environmental management projects at the INEEL, including

presumed status of each project at the end of 2006, project milestones in achieving that status, and assumptions used in those projections.

This Discussion Draft addresses all Environmental Management activities at the INEEL except: those underway at the Argonne National Laboratory-West which are administered by the Department of Energy (DOE)-Chicago Operations Office and those at the Naval Reactors Facilities which are administered by the Navy. Because the Environmental Management activities at Argonne National Laboratory-West are closely integrated with INEEL activities in support of DOE commitments, brief summaries of those activities are included in this report. Details can be obtained in the DOE-Chicago Operations Office Environmental Management Discussion Draft.

In developing the INEEL's Discussion Draft, 52 mission-related projects were developed. These projects were established using the seven criteria established by the DOE Environmental Management Program, namely; eliminate the most urgent risks; reduce mortgage and support costs to free up funds for further risk reduction; protect worker health and safety; reduce the generation of wastes; create a collaborative relationship between DOE, its regulators, and its stakeholders; focus science and technology development on cost and risk reduction; and integrate waste treatment and disposal across the INEEL. The details of this document present a brief summary of each of the 52 projects.

Additional work scope has been identified to support national efforts in the Mixed Low-level Waste/ Low-level Waste Center of Excellence. The INEEL's role in this national program is documented in the Low-level/Mixed Low-level Waste Center of Excellence Project Baseline Summary.

2. PLANNING PROCESS

2.1 Process Overview

A key component to the vision of completing as much cleanup as possible by FY-2006 is the identification and resolution of related issues. Many of the issues were identified by members of the public, the Environmental Management Site-Specific Advisory Board, and state officials who reviewed an earlier draft of this plan. Other potential obstacles and opportunities to the plan have been identified internally. All identified issues are categorized and tracked through resolution. Issues only requiring clarification of existing policy have or will be addressed in the Project Baseline Summaries. Action Plans are being developed for those issues which are broader in scope, are cross-site in nature, or could significantly change the Department's planning baseline, policy, or path forward. Issue resolution is an on-going process and the DOE will continue to encourage identification of issues through formal, scheduled, stakeholder involvement activities.

This Discussion Draft addresses the optimum approach to completing the cleanup mission at the INEEL. The compliance case scope of work, schedules, milestones, and budget request in the Discussion Draft are consistent with the INEEL meeting the current regulatory compliance requirements.

Environmental Management, in a parallel effort, has asked DOE sites to involve stakeholders in the formulation of the FY-1999 budget. The Environmental Management FY-1999 budget is being developed concurrently with the Discussion Draft. In July 1997, Environmental Management will be holding a national feedback session to discuss the Environmental Management national FY-1999 budget. The options and alternatives described in this Discussion Draft and future iterations of the 2006 Plan will impact budget formulation and execution activities. This planning process will allow Environmental Management to develop annual budgets in the context of long-term objectives.

2.2 Stakeholder Involvement

Beginning with the Secretary's video conference with members of the public to kick off this planning effort, stakeholder involvement has been a part of the development of the INEEL Discussion Draft. A series of events, written materials, news articles, newsletters, tours, and public meetings associated with a formal comment period on the draft Ten-Year Plan have been conducted. Briefings have been given to the Citizens Advisory Board, and recommendations on the draft Ten-Year Plan received from the Board. State officials have been briefed, and have officially reviewed and commented on the draft Ten-Year Plan. Letters from DOE-ID management were sent to identified stakeholders inviting them to participate in meetings and briefings. Note cards, newspaper ads, news releases, toll-free telephone access, and opportunities for communicating information have been used to solicit public interaction. Comments received during the public comment period on the July 1996 version of the draft Ten-Year Plan have been used to guide the development of this Discussion Draft.

2.2.1 Goals and Objectives

According to Al Alm, Assistant Secretary for Environmental Management, "We cannot succeed in the critically important endeavor without strong public and institutional support." In keeping with the Assistant Secretary's intent, the goal of INEEL's public involvement initiative is to have a broad range of stakeholders receive and understand information concerning DOE's complex-wide efforts for cleaning up the DOE complex by 2006; and more to the point, the impacts these efforts will have on the INEEL. The INEEL has three goals for involving stakeholders in the preparation of the INEEL Initial 2006 Plan. They are:

1. to inform the public about environmental management projects;

2. to involve stakeholders in dealing with changes in environmental management work and budget allocations;

3. to continue the process, including citizen participation, and provide feedback concerning stakeholder interests.

Through the activities identified in Section 2.2.4, Schedule of Activities, an active communication link between the public, DOE-ID, and INEEL contractors is being established. Information from issues raised by the public will become one of the considerations used to set priorities for cleanup and waste management activities. Public participation will help ensure that DOE-ID's activities are carried out with greater purpose and benefit to the people of Idaho and the nation. By releasing the Discussion Draft to the public, it is expected that public comments will result in an overall improved plan.

The decision making process at the INEEL, and within the DOE, has changed considerably in the last few years. It has evolved from an internal process involving few people to a more open process involving many individuals, groups, and government agencies. Decisions that were made on the basis of technical and programmatic considerations are now subject to broader analysis, with many more factors considered. The INEEL is committed to making the decision and planning processes responsive to both programmatic and stakeholder needs. Given the size and complexity of its programs, this is a formidable challenge.

The expected results of stakeholder involvement in the development of the INEEL Initial 2006 Plan are (1) a broad range of stakeholders are aware of DOE-ID's plan for addressing issues; (2) that stakeholders understand the Plan's impact on operations at the INEEL; and (3) that values and suggestions communicated to DOE-ID as a result of stakeholder interactions are reflected.

2.2.2 Stakeholders

Following is the current listing of identified stakeholders that receive communication via personal contact or written information. The principal stakeholder base will be accessed through the INEEL's community relations mailing list, which consists of almost 6,700 names including local, state, and federal elected officials; Tribal Council Members; citizens; special interest groups; business interests; INEEL employees; and individual stakeholders.

Units of Government

Local, state, and federal government elected officials

Shoshone-Bannock Tribes Tribal Council and Tribal members
State Division of Environmental Quality points-of-contact
State INEEL Oversight Program
Environmental Protection Agency (EPA) Region 10

Media

Local and national electronic and print media

Advisory Board

Citizens Advisory Board

General Public and Special Interest Groups

General public
Coalition 21
Snake River Alliance
League of Women Voters
INEEL employees
Environmental Defense Institute
Environmental interests
Civic organizations
Labor and Trade Unions

2.2.3 Communication Resources

A variety of both structured and informal opportunities exist for public participation in DOE-ID activities at the INEEL. DOE-ID thanks those stakeholders who have participated in the past activities, and encourages citizens to participate in the upcoming activities described in Section 2.2.4, Schedule of Activities. Technical experts also are available to make presentations or schedule teleconference calls to interested groups. Among other methods of communicating with INEEL stakeholders, the following resources will be used in establishing two-way communications during the development of INEEL's Environmental Management Program plans to the year 2006, and beyond.

INEEL Reporter Newsletter

The March/April Citizens' Guide supplement to the *INEEL Reporter* newsletter published an article on the impact of the INEEL's planning effort to notify the public that the Discussion Draft will soon be available for their review. The Citizens' Guide is mailed to 6,700 readers.

Lockheed Star newspaper

The Star is distributed to Lockheed Martin Idaho Technologies Company (LMITCO) employees, retirees, and other interested parties. Feature articles will be written and included to inform workers and provide access to the Discussion Draft highlights.

Citizens Advisory Board

Bimonthly meetings of the INEEL's Citizens Advisory Board have been scheduled during January, March, May, July, September, and November 1997. A Discussion Draft update and discussion period will be included on the agenda for each meeting, as the Board requests and finds appropriate. At the January 23, 1997, meeting in Idaho Falls, a presentation was designed to status the Board on topics that included: schedule changes; responses to comments the Board submitted to the July 1996 document; issue resolution process; FY-1996 -1999 funding; budget profile with scope and milestones; FY-1999 budget and appropriations process (how it has changed, how the Citizens Advisory Board and other stakeholder groups

participate, and when); correlation of this effort and the Baseline Environmental Management Report (BEMR); and DOE complex-wide integration. The DOE-ID Environmental Management Planning staff also updated the Board concerning the status of ten-year planning activities on March 19, 1997.

INEEL Internet/Intranet Homepages
The INEEL's website address (www.inel.gov/documents) will be advertised and noted in INEEL publications to allow unlimited access to the Discussion Draft document. Feedback will be accepted by E-mail and will be directed to the DOE-ID Environmental Management Office.

Pre-Draft Submittal Stakeholder Input Interactions and Comment Resolution
Between January 15 and February 28, 1997, consultation was conducted personally and by telephone with representatives of key organizations to solicit their current views and concerns, and to discuss comments they submitted on the July 1996 document. Input offered was factored as INEEL finalized the Discussion Draft.

Public Comment Period
A general public comment period will be conducted following the release of the National and site specific Discussion Drafts. Throughout the comment period, meetings among stakeholder groups, regulators, and DOE-ID technical program planners will occur to exchange information, solicit input, and discuss progress. Formal comments received during this period will be reflected in the fall submission of the Draft 2006 Plan to the Department of Energy-Headquarters (DOE-HQ).

Briefings
Briefings to local, state, and congressional elected officials will occur in October 1997.

In February 1997, DOE-ID staff members met with representatives from the Shoshone-Bannock Tribes to discuss elements of INEEL's draft Ten-Year Plan. The Tribes pointed out that they are not stakeholders in the general sense of the word, but rather, they are have special interests and rights because of their aboriginal use of what is now the INEEL. The land in and around the INEEL holds special meaning for the Tribes. Future use of the land once it leaves DOE's hands is a major concern to the Tribes.

2.2.4 Schedule of Activities

The next major step to finalize the INEEL Discussion Draft is to engage public participation. The current schedule calls for the Discussion Draft to be prepared and released for public and congressional review in the late spring of 1997, with a goal of revising the plan in late summer 1997 and revising it for release to the public for a second comment period.

The following list of events is a chronology of future activities that are associated with DOE's public involvement strategy. As activities move up on the calendar, actual dates, locations, and times of the activities will be confirmed through mailings and other means of communication.

May 21, 1997	Brief INEEL Citizens Advisory Board concerning status of the Discussion Draft and solicit comments.

Late Spring 1997	Begin 90-day public comment period on INEEL Discussion Draft; publish notice in newspapers on the availability of INEEL and DOE-HQ plans, and Action Plans; issue a news release soliciting public comment; offer the opportunity for the public to receive briefings and teleconferences.
June/July 1997	Host informal public workshops during the public comment period to provide interaction between the public and INEEL project managers concerning elements of the Discussion Draft in general; including, discussions of Project Baseline Summaries, Action Plans, funding levels, and an opportunity to turn in comments.
September 9, 1997	90-day comment period ends.
Late Summer 1997	Submit Draft 2006 Plan, Project Baseline Summaries, and final Action Plans to DOE-HQ.
September 24, 1997	Brief the Citizens Advisory Board on the nature of public comments, DOE-ID response to comments, and final outcome of the planning effort.
Early Fall 1997	Release the INEEL, other sites, and the National Draft 2006 Plans to the public for final comments.
Mid Winter 1997	Issue INEEL, other sites, and the National Initial 2006 Plan as the final long-range planning document for the Environmental Management Program.

2.2.5 Evaluation of Effectiveness

Once stakeholder involvement and the general public comment period have occurred, the information and activities will be evaluated to determine how well they achieved what DOE intended, and how well the activities were received and used by the public. Ideas suggested by stakeholders will be incorporated into future public involvement strategies.

2.2.6 Invitation to Get Involved!

DOE invites the reader to become involved in the planning effort by offering comments and suggestions on the most reasonable and efficient ways to meet the challenges affecting INEEL's future. Additional information and requests for briefings or discussions can be arranged by calling the INEEL's toll-free citizens' inquiry line at 1-800-708-2680. The Discussion Draft document will be available on the INEEL's website at "www.inel.gov/documents". Instructions on how to submit comments electronically will be included on the website. Written comments may be submitted to:

Accelerating Cleanup: Focus on 2006, Discussion Draft Coordinator
DOE-Idaho Environmental Management Program
P.O. Box 2047
Idaho Falls, ID 83403-2047

2.3 Issue Resolution Process

One of the primary objectives of the INEEL Discussion Draft initiative is to resolve issues related to the implementation of the ten-year vision. The INEEL is working to resolve issues and opportunities known to date, as part of its ten-year planning process. Resolution of issues and decision-making on opportunities is expected to be on-going and will result in modifications and updates to the INEEL Discussion Draft. This section describes the process for resolving issues related to the plan.

In general, an Action Plan will be developed if the issue is broader in scope, changes the Department' s previous planning basis/baseline, has not been addressed with stakeholders before, is cross-site in nature, requires a policy change be made, or affects the INEEL's path forward. An issue does not require an Action Plan if the issue reflects the Department's previous planning basis/baseline, has been addressed with stakeholders before, or simply requires a clarification.

Between February and June 1997, DOE-ID and LMITCO employees will be focusing on issue resolution and fine-tuning the draft Action Plans based on agency and public input received during the public comment period. Examples of Action Plan changes include making planning assumptions more acceptable, clarifying decision making processes, adjusting processes based on stakeholder availability and input, and integrating Action Plans with related issues in other plans.

2.4 INEEL Specific Issues

Identified issues specific to INEEL and Action Plan Summaries can be found in Appendix A. These Action Plan Summaries contain information about the background, planning assumptions, approach to resolution, schedule of activities aimed at resolving the issue, participants involved, analysis or documentation involved, and stakeholder involvement opportunities. During the public comment period, stakeholders will have an opportunity to interact with DOE-ID and LMITCO project managers to get additional information on these issues.

3. INEEL Discussion Draft: PROGRAM SUMMARIES

3.1 Background

3.1.1 INEEL Overview

The INEEL occupies 890 square miles of remote desert terrain in southeastern Idaho. There are no permanent residences within its borders, and the nearest major community, the city of Idaho Falls, is located 42 miles to the southeast. The Laboratory consists of ten major operating areas at the site and several facilities in Idaho Falls. The Environmental Management Program has been the Laboratory's landlord since FY-1994. The INEEL was recently designated a National Environmental Research Park.

The INEEL's main missions are Environmental Restoration (Closure), Spent Nuclear Fuel, Waste Management, and Infrastructure and Deactivation. Environmental Restoration (Closure) addresses CERCLA contaminated soil, ground water, structures, and other material; Spent Nuclear Fuel coordinates the management of spent nuclear fuel; Waste Management treats, stores, and disposes of waste generated from past fuel reprocessing missions, manufacturing, research, and remediation; and Infrastructure and Deactivation coordinates and oversees the orderly transition of contaminated structures and facilities from other DOE programs to the Environmental Management Program, puts those facilities into a safe, low-risk maintenance mode, and provides overall INEEL landlord functions.

3.1.2 Savings From Site-wide Integration Efforts: Idaho's Success Story

For the last three years the INEEL has been developing and implementing a site-wide Environmental Management integration effort. This effort was implemented in response to the challenge of optimizing projects, maximizing risk reduction, and completing the cleanup as early as possible and at the lowest possible life-cycle cost, while achieving compliance with agreements and regulations.

The INEEL began the replanning of its Environmental Management Program in 1992 by establishing new visionary goals of contract reform, privatization, integration (work sequence optimization), cost validation, complex-wide integration, and process re-engineering. In August of 1994 a new operating contract was established with the Lockheed Martin Corporation. This contract reform consolidated INEEL operations under the direction of one contractor, LMITCO. DOE-ID and LMITCO established a new environmental culture at the INEEL and initiated integration efforts at the site. The Idaho Operations Office, in 1996, set a clear goal for the Environmental Management mission: *Finish it!*

The Baseline Environmental Management Report (BEMR) issued in 1995, which didn't include Technology Development, was completed in March 1995 and identified a life-cycle cost estimate of $29 billion. Through a major systems engineering and integration effort, and the incorporation of the Idaho Settlement Agreement with resulting realignment of infrastructure (March-December 1995), life-cycle costs were reduced by $10.4 billion. BEMR 96 was published in June 1996 and reflected a reduced life-cycle cost of $18.6 billion. The baseline was reduced by another $0.6 billion to $18.0 billion by incorporating the Critical Review Board (an internal review board established by INEEL senior management) results in preparation for the FY-1998 budget submittal.

Through the establishment of contract reforms and the development and implementation of integration efforts, the INEEL was able to reduce life-cycle costs by an astounding $11 billion. Integration efforts continued and an additional $1.4 billion in life-cycle cost savings were identified during the development of this Discussion Draft. Figure 8 shows this dramatic reduction (almost 50 percent) in life-cycle costs realized by the INEEL.

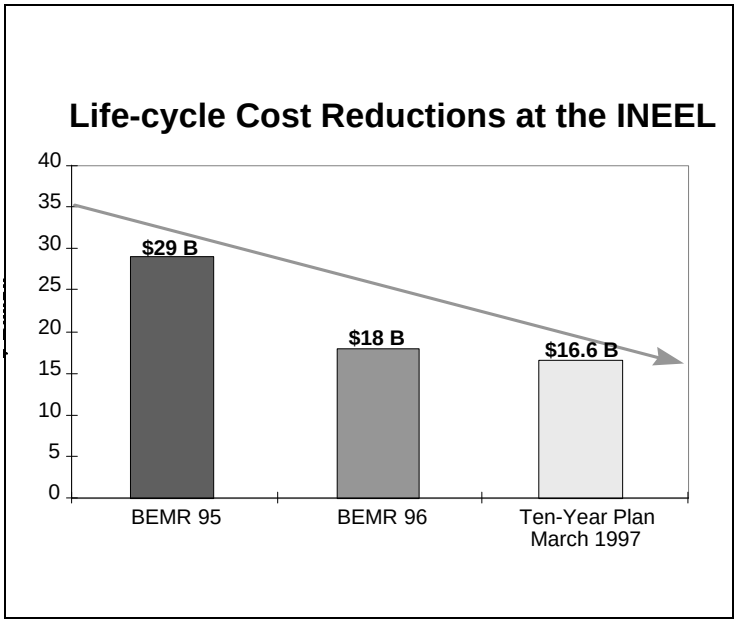

Figure 8. Life-cycle Cost Reductions

Although the Idaho Site's Environmental Management mission is not completed by FY 2006, the schedule has been dramatically accelerated. Through efforts to reduce life-cycle costs and accelerate cleanup at the site, DOE-ID and LMITCO were able to realize an accelerated FY 2006 end state, which includes the completion of 27 of the 52 Environmental Management projects while accomplishing work associated with 61 enforceable milestones. By FY-2006, 100 percent of the DOE's spent nuclear fuel will be placed in dry storage, 100 percent of CERCLA assessments will be complete, 100 percent of the mixed low-level waste and low-level waste backlogs will be eliminated, 90 percent of the CERCLA release sites will be completed, 30 percent of the stored transuranic waste will be shipped to the Waste Isolation Pilot Plant, and 60 percent of the liquid high-level waste will be calcined. This significant reduction, shown in Figure 9**,** was accomplished through the integrated efforts of DOE-ID and LMITCO.

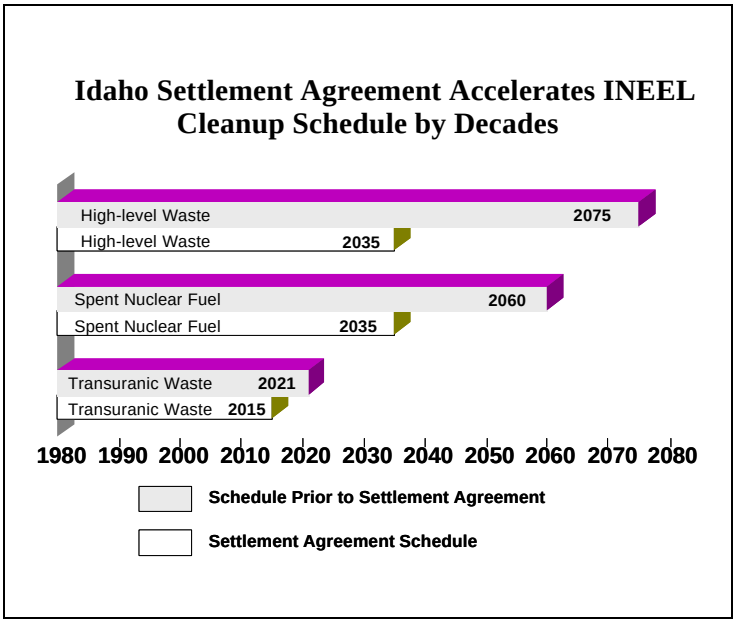

Figure 9. Accelerated INEEL Cleanup Schedule

The INEEL is rapidly moving forward towards its established goal to *Finish it!* The INEEL is actively implementing site-wide program integration and reengineering; assessing new opportunities and validating costs; seeking to increase efficiencies through the complex-wide integration effort, and projectizing programs.

The INEEL life-cycle cost baseline history (unescalated) is shown in Figure 10. Figure 11 shows this version of the Discussion Draft life-cycle cost baselines, escalated and unescalated. The escalated life-cycle costs through the year 2006 are shown by mission in Figure 12. Figure 13 shows the schedule for the 52 Project Baseline Summaries.

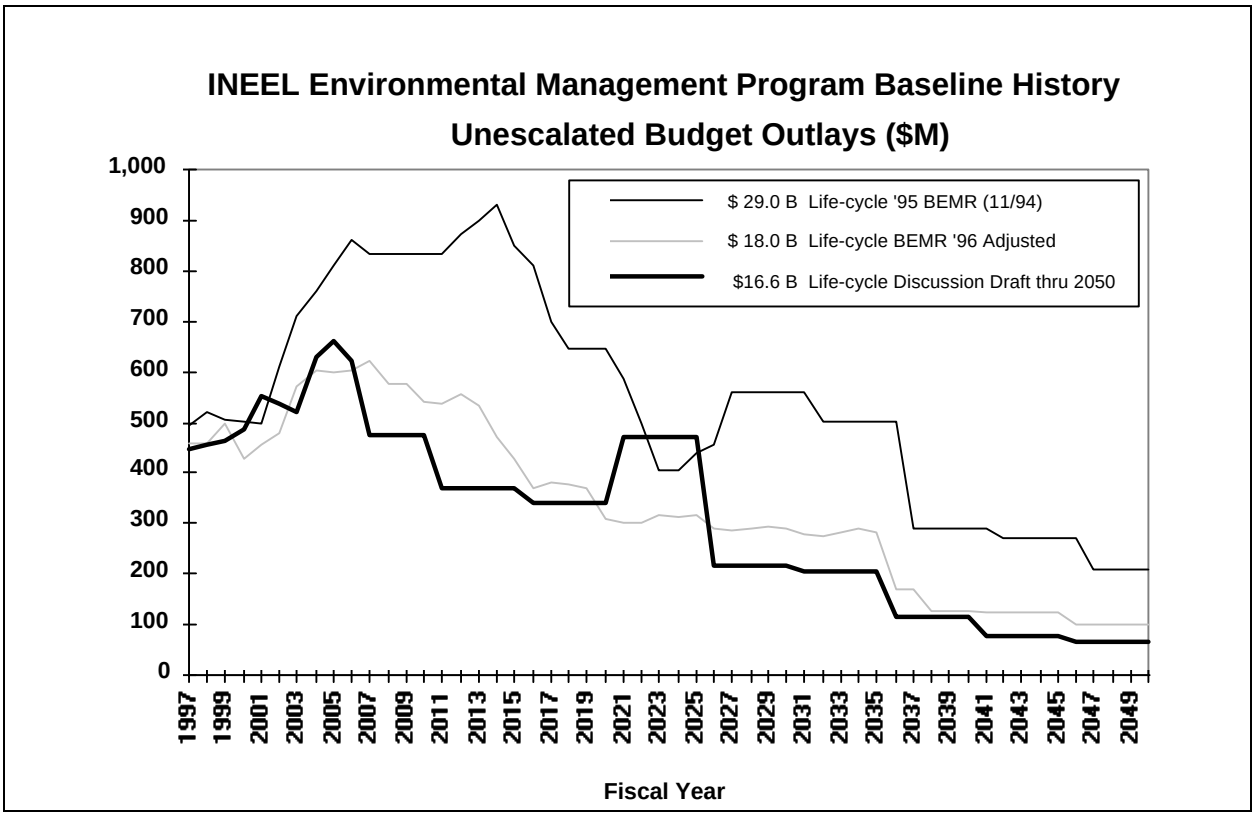

Figure 10. INEEL Life-cycle Cost Baseline History

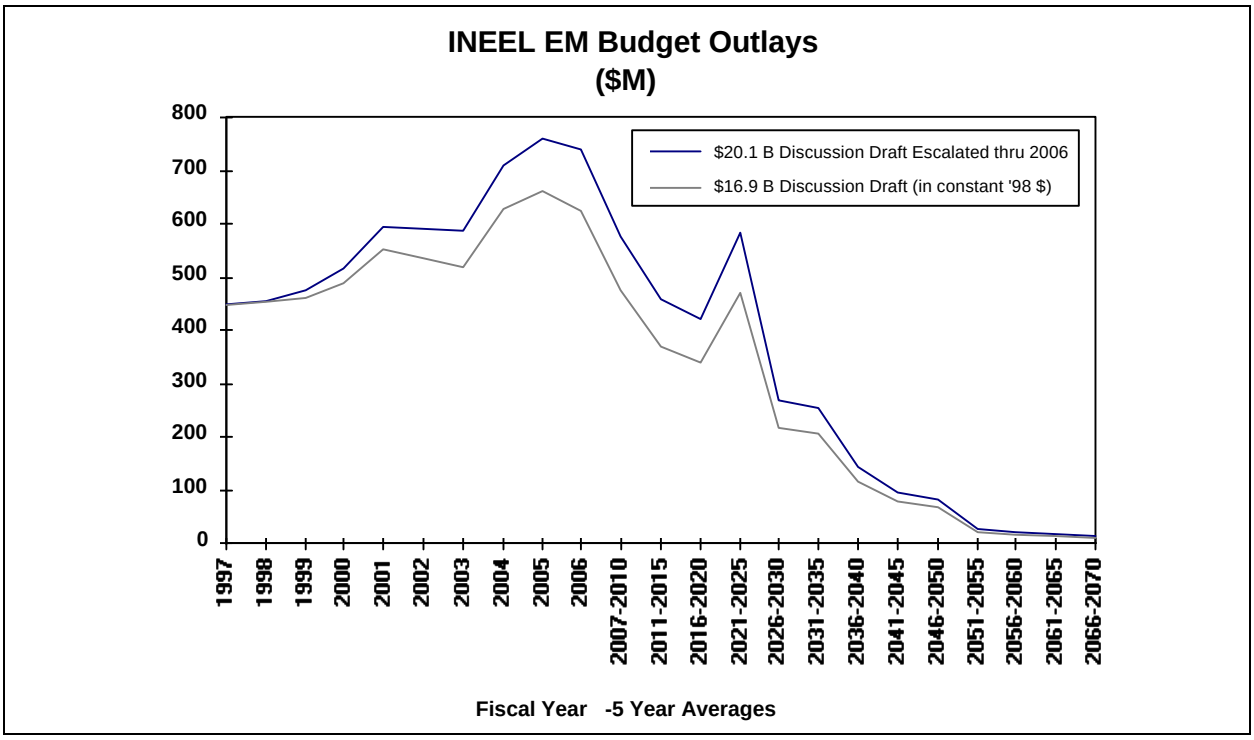

Figure 11. INEEL Final Draft Escalated Life-cycle Costs

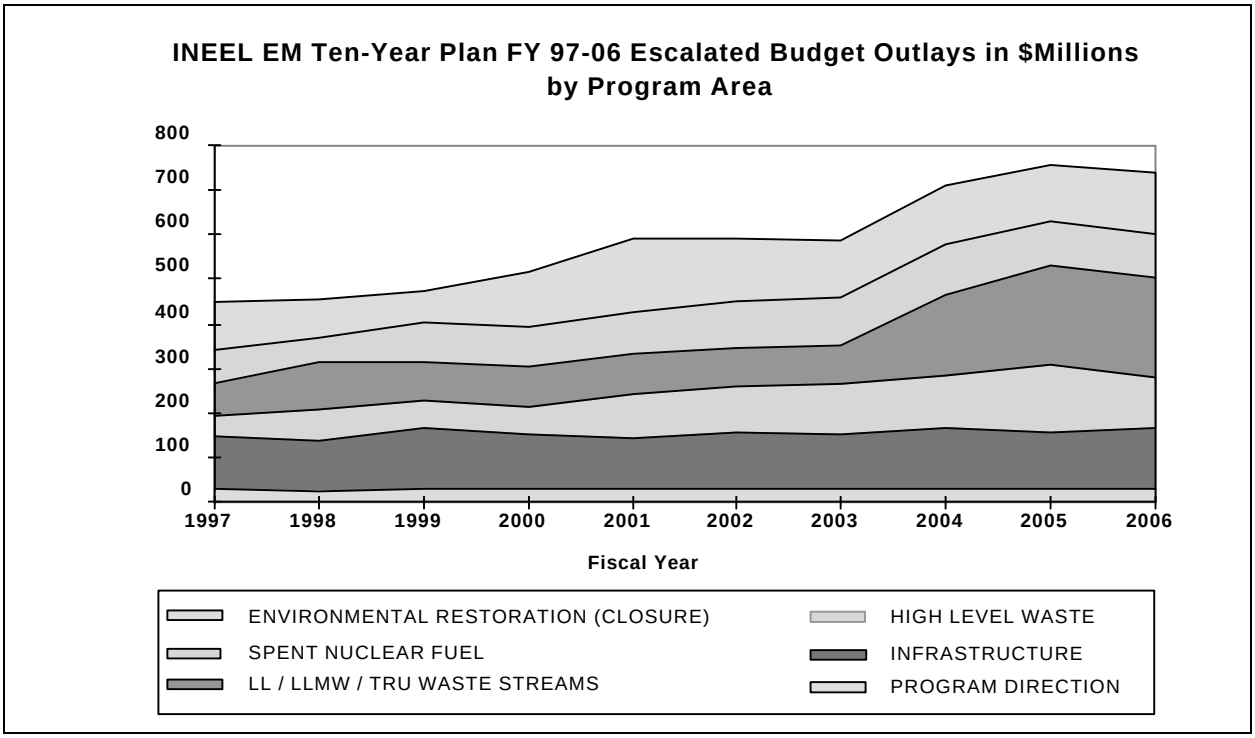

Figure 12. INEEL Discussion Draft FY-1997 Through FY-2006 Budget Outlays

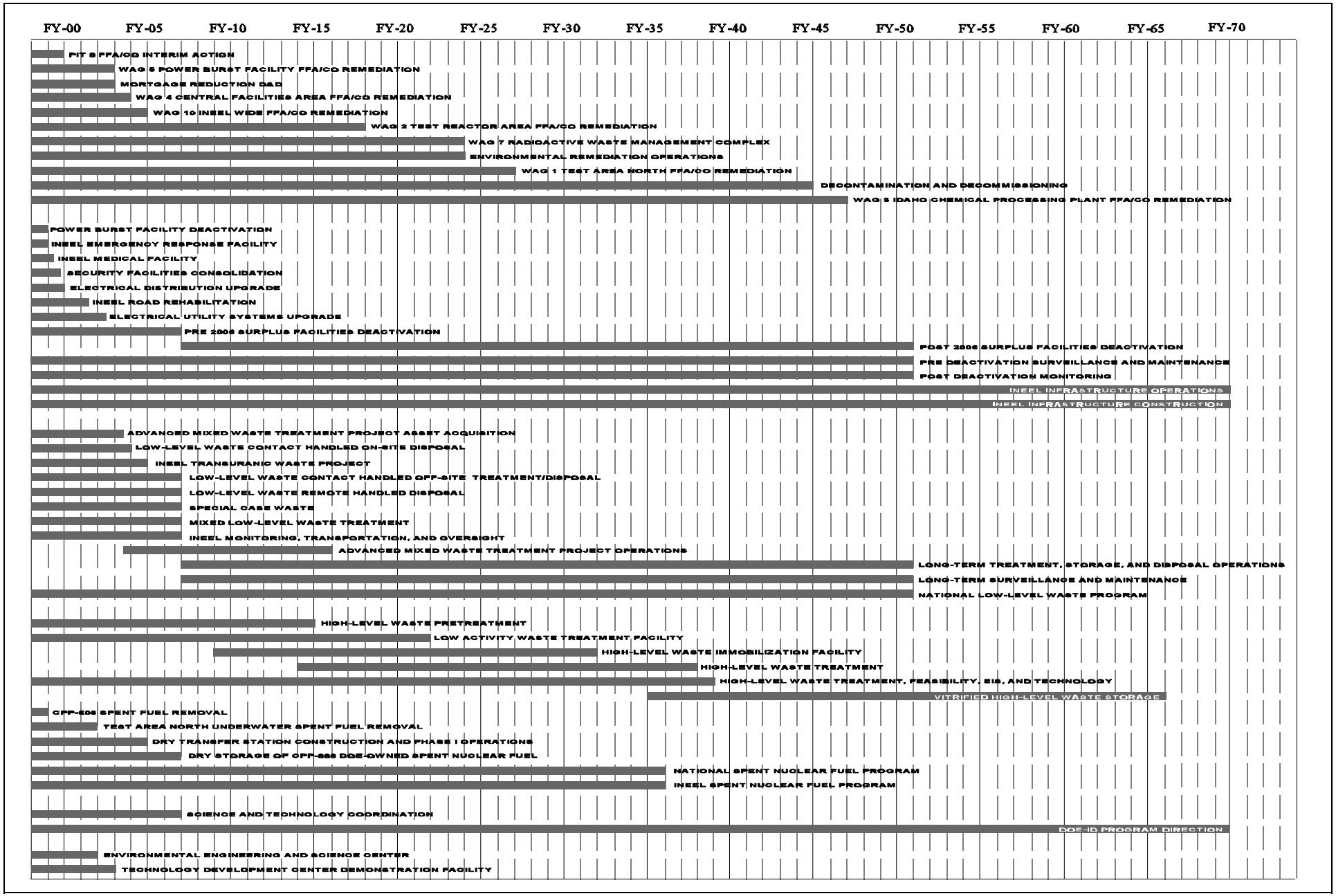

Figure 13. High-level Project Baseline Summary Schedule

3.2 Key INEEL Assumptions

The following general INEEL assumptions were used in the development of the Project Baseline Summaries.

(1) The costs presented in this plan have been escalated at 2.7 percent per year compounded through FY-2006 with the base year being FY-1998. The FY-2007 to life-cycle costs are based upon the base year FY-2006. This escalation has resulted in an increase of costs by $494 million during the period of FY-1997 to FY-2006 and an overall increase of approximately $3.2 billion.

(2) Commitments made in the Idaho Settlement Agreement between the DOE, Navy, and the State of Idaho will be met.

(3) The Spent Nuclear Fuel and INEEL EIS will not slow environmental restoration work and will not conflict with decisions reached in CERCLA or other NEPA documents for environmental restoration activities.

(4) The Environmental Restoration Program will plan for the treatment, storage, and disposal of wastes that are generated by environmental restoration activities at the INEEL.

(5) DOE-owned spent nuclear fuel will be disposed of in a federal repository with an anticipated opening date of 2015.

(6) All spent nuclear fuel under the direction of this funding area will be shipped out of the State of Idaho by 2035.

(7) All sodium-bearing wastes will be calcined by 2012.

(8) All high-level waste will be treated and ready for disposal by 2035.

(9) The Waste Isolation Pilot Plant will open to accept waste in 1998 and will accept pre-1970 transuranic waste for disposal by 2004.

(10) The Waste Isolation Pilot Plant waste receipt capabilities for INEEL wastes will meet the disposal rates identified in the Idaho Settlement Agreement.

(11) Sufficient funding will be available as needed to complete compliance-related work.

(12) Environmental regulations will not change appreciably over the life of the projects.

(13) Planning for the INEEL will be comprehensive and integrated.

(14) The Comprehensive Facility and Land Use Plan contains additional key INEEL assumptions.

3.3 INEEL Life-cycle Summary

3.3.1 INEEL's FY-2006 Cleanup Status

By FY-2006, the INEEL will complete 27 of the 52 planned Environmental Management Program projects accomplishing the work associated with 61 enforceable milestones. The following summarizes major activities by waste stream for the next 10 years.

Transuranic Waste—The Transuranic Waste Project will ship approximately 3,100 cubic meters of waste out of the State of Idaho to the Waste Isolation Pilot Plant by December 31, 2002. The Advanced Mixed Waste Treatment Project facility construction will be complete in FY-2003 when it will begin to handle the remaining approximately 62,000 cubic meters of stored transuranic waste.

Low-level Waste, Mixed Low-level Waste, and Special Case Waste—Disposal of contact handled low-level waste at the Radioactive Waste Management Complex is ultimately limited by the physical capacity of that facility. This capacity is also potentially limited by the total amount of radioactivity disposed of at the facility in accordance with ongoing performance evaluations, in light of the continuing need for disposal of INEEL low-level waste beyond FY-2006, DOE is reviewing the technical, economical, and other related issues surrounding continued disposal at the Radioactive Waste Management Complex or elsewhere at the INEEL as well as investigating alternative disposal sites that meet applicable regulations. Any such reviews and subsequent planning will be coordinated with waste generators who currently rely on waste disposal at the Radioactive Waste Management Complex, to ensure their needs are supported.

Remote handled low-level waste disposal operations will likely continue at the Radioactive Waste Management Complex post FY-2006. These operation will accommodate the receipt and disposal of remote handled low-level waste until an acceptable off-site disposal location is operational that meets regulatory requirements and any associated transportation issues are resolved.

Mixed low-level waste treatment operations at the Waste Experimental Reduction Facility cease in FY-2003. At this time, the Advanced Mixed Waste Treatment Project will come on line and treat newly generated mixed waste for the INEEL. Waste Experimental Reduction Facility Resource Conservation and Recovery Act (RCRA) closure will be completed by FY-2006. By 2006, the Advanced Mixed Waste Treatment Project will be processing approximately 5,000 cubic meters of waste per year.

High-level Waste—The high-level waste projects will calcine 3827 cubic meters of sodium and non-sodium bearing liquid waste to 1546 cubic meters of granular solids by 2006.

Spent Nuclear Fuel—By the end of FY-1998, all spent nuclear fuel will be transferred out of CPP-603. Three Mile Island fuel will be transferred from underwater storage at Test Area North to new dry storage at the Idaho Chemical Processing Plant by FY-2001. Construction of the Spent Nuclear Fuel Dry Transfer Station will be completed in FY-2003 allowing Phase I fuel types to be placed into new dry storage. By

FY-2006, all DOE-owned fuel at the INEEL will be transferred from wet storage to existing or new dry storage facilities.

Environmental Restoration (Closure)—Although remediation and closure continue beyond FY-2006, all RODs will be negotiated by FY-2000 and remediation will be essentially complete in six of the eight INEEL WAGs addressed in this plan by FY-2006. Long-term groundwater pump and treat operations will continue through 2026 at WAG 1. Cap construction and long-term monitoring and maintenance will continue at WAG 3. Transuranic Waste Pits and Trenches (WAG 7) will have significant remediation work to complete after FY-2006. Decontamination and dismantlement (D&D) of surplus facilities will continue through 2044.

Infrastructure—The Office of Infrastructure Management coordinates and oversees the orderly transition of contaminated structures and facilities from other DOE programs to the Environmental Management Program that puts those facilities into a safe, low-risk maintenance mode, and provides overall INEEL landlord functions.

The INEEL landlord functions support the general plant projects and line-item construction projects that will correct deficiencies in environmental, utility, fire, and facility infrastructure systems. Also, general purpose capital equipment will be acquired and managed in support of the INEEL's missions. The landlord function also provides an integrated and comprehensive facility planning system.

The INEEL has environmental management and cleanup activities that continue well beyond FY-2006 and Infrastructure projects must continue at a level adequate to ensure the integrity of required facilities for the period required to complete all Environmental Management commitments. Six Infrastructure Line Item Construction Projects will be completed by FY-2002 to provide infrastructure continuity. These projects include the Medical Facility, the Emergency Response Facility, the Security Facilities Consolidation Line Item Construction Projects, the Electrical and Utility Systems Upgrade, the Electrical Distribution Upgrade, and the Road Rehabilitation Project. Eight additional proposed Line Item Construction Projects are identified and will complete by FY-2006 if approved. In addition, multiple General Plant Projects and General Purpose Capital Equipment acquisitions will complete on an annual basis throughout the Environmental Management mission life cycle.

3.3.2 Site Final End State

The INEEL's final end state is described in the *INEL Comprehensive Facilities and Land Use Plan* issued March 1996. With completion of the projects identified in this Discussion Draft, the INEEL will be restored to industrial and open space use standards. This degree of cleanup supports the 100 year future land use projection analysis, which indicates no residential use of the INEEL within the next 100 years. INEEL's end state objective is to complete cleanup per FFA/CO requirements and disposition all waste and other materials in accordance with existing and future agreements. This will be done while maintaining important core laboratory capabilities and technical competencies needed to support the nation's interests as outlined in the *INEEL Long Range Plan*.

3.3.3 Funding Scenarios

Over the last year the INEEL Environmental Management Program Planning Staff and management have been examining two potential planning cases (see Table 1): one assuming $6.0 billion per year funding starting in FY-1999, referred to as the High Planning Case; and a second assuming $5.5 billion per year funding starting in FY-1999, referred to as the Low Planning Case. Highlights of the High Planning Case and the Low Planning Case are summarized in Table 1. Because these cases assume a flat budget in current dollars, they reflect declining funding in constant dollars: in other words, purchasing power is decreasing over time. These two planning cases allowed the Office of Environmental Management to analyze the impacts of different funding levels on life-cycle costs, schedule, scope, risk, compliance, and mortgage reduction. Although these cases are not exhaustive of all possible planning scenarios, they serve to highlight the major issues related to alternate funding possibilities.

Because some schedules at these two planning cases failed to meet some core planning goals, senior Environmental Management managers developed a third scenario at $6.0 billion per year, which incorporated additional efficiencies and also reallocated a modest amount of funding among sites. This third funding scenario was referred to as the High Planning Case with Enhancements. This Discussion Draft is written to the High Planning Case with Enhancements. Meeting the enforceable DOE commitments is the foundation of the INEEL High Planning Case with Enhancements. This funding case meets DOE commitments made in the Idaho Settlement Agreement, the Federal Facility Agreement/ Consent Order (FFA/CO), the INEEL Site Treatment Plan, and other Consent Orders.

3.3.4 Funding and Cost Challenges

One of the key challenges facing the Environmental Management Program is to achieve program commitments in an era of declining budgets. The Government is striving to balance the national budget by 2002 and this has resulted in level funding targets, with no increases for inflation for the Environmental Management Program during the next ten years. To address this concern, the INEEL has incorporated cost savings expected from re-engineering some of the existing management processes of $80 million into the Program Baseline estimates for the period thru FY-2002, while also committing to reducing the support cost base by $33 million from the current level for years after FY-1998. Additionally, a $50 million efficiency challenge has been set for the period from FY-1999 thru FY-2003. Any additional efficiencies achieved will be reinvested at the INEEL to further accelerate cleanup and reduce mortgage costs. Even with these expected cost savings, based on current estimates, the outyear funding targets show a total budget shortfall of $129 million (see Table 2) for the period of FY-1998 thru FY-2003.

This $129 million shortfall is based on the assumption that the capital asset portion of Privatization Funding (BA) and Outlays (BO) would not be addressed within the INEEL's base Environmental Management program funding targets. As this Discussion Draft was developed, a concern has been raised that privatization outlays may have to be scored against the base program funding available. This would create a very difficult, if not impossible situation that is not currently provided for in the funding scenarios depicted in this document.

Table 1. Planning Scenarios

Activity	High Planning Case with Enhancements—$6.0 Billion	High Planning Case—$6.0 Billion	Low Planning Case—$5.5 Billion
Spent Nuclear Fuel	100 percent of DOE spent nuclear fuel in Dry Storage by 2006. All fuel removed from Idaho by calendar year 2035.	100 percent of DOE spent nuclear fuel in dry storage by 2006. All fuel removed from Idaho by calendar year 2035.	100 percent of DOE spent nuclear fuel in Dry Storage by 2006. All fuel removed from Idaho by calendar year 2035.
Low-level, Mixed Low-level, and Transuranic Waste	3100 cubic meters of transuranic waste shipped to the Waste Isolation Pilot Plant by 12/2002. Advanced Mixed Waste Treatment Project construction complete in FY 2003. By 2006, backlog of low-level and mixed low-level waste eliminated, Advanced Mixed Waste Treatment Project in operation processing 5000 cubic meters per year, the Waste Experimental Reduction Facility closed, and approximately 30 percent of the transuranic waste out of Idaho. Final end state - 2015: Disposal of newly generated waste at a RCRA Facility and stored transuranic waste disposed at the Waste Isolation Pilot Plant.	3100 cubic meters of transuranic waste shipped to the Waste Isolation Pilot Plant by 12/2002. Advanced Mixed Waste Treatment Project construction complete in FY 2003. By 2006, the backlog of low-level and mixed low-level waste is eliminated, the Advanced Mixed Waste Treatment Project in operation processing 5000 cubic meters per year, the Waste Experimental Reduction Facility closed, and approximately 30 percent of transuranic waste out of Idaho. Final end state - 2015: Disposal of newly generated waste at a RCRA Facility and stored transuranic waste is disposed at the Waste Isolation Pilot Plant.	3100 cubic meters of transuranic waste shipped to the Waste Isolation Pilot Plant by 12/2002. Advanced Mixed Waste Treatment Project construction complete in FY 2003. The March 31, 2003 start date for processing transuranic waste in the Advanced Mixed Waste Treatment Project is jeopardized and treated volumes of wasted reduced through 2006. By 2006, backlog of low-level and mixed low-level waste eliminated, the Waste Experimental Reduction Facility closed. Final end state - 2018: Disposal of newly generated waste at a RCRA Facility all by 2015. Final end state for stored transuranic waste will be delayed three years to 2018 with an increase cost of $69 million and non-compliance with the Idaho Settlement Agreement.
High-level Waste	By 2006, 3,827 cubic meters of the current 6,430 cubic meters high-level liquid waste will be calcined and two of 11 tanks will be closed. Final end state at 2038: All 11 tanks closed, and all waste road ready by FY 2035.	By 2006, 3,827 cubic meters of the current 6,430 cubic meters high-level liquid waste will be calcined and two of 11 tanks will be closed. Final end state: Final vitrification will be delayed by 11 years to 2046 at an increased cost of $570 million and non-compliant with the Idaho Settlement Agreement.	By 2006, 3,827 cubic meters of the current 6,430 cubic meters high-level liquid waste will be calcined and two of 11 tanks will be closed. Final end state: Final vitrification will be delayed by 21 years at an increased cost of $950 million and non-compliant with the Idaho Settlement Agreement.
Deactivation, D&D	By 2006, inactive reactors defueled and inactive high risk facilities deactivated. All facilities deactivated by 2050 and D&D continues through 2055.	By 2006, inactive reactors defueled and inactive high risk facilities deactivated. All facilities deactivated by 2050 and D&D continues through 2055.	By 2006, none of the facilities will be stabilized. Deactivation and D&D will be delayed 12 years to 2067 at an increased cost of $145 million.
Environmental Restoration	By 2006, 100 percent of assessments complete, 90 percent of release sites complete, Transuranic Pits and Trenches cleanup in progress and Test Area North groundwater pump and treat in progress. Final end state - 2047: All assessments complete, complete cleanup of all release sites in FFA/CO (all RODs implemented).	By 2006, 100 percent of assessments complete, 90 percent release sites complete, and Test Area North groundwater pump and treat in progress. The Transuranic Pits and Trenches is delayed 13 years to 2036 and doesn't initiate until 2011. Non-compliant with the Idaho Settlement Agreement.	By 2006, 100 percent of assessments complete, 90 percent release sites complete, and Test Area North groundwater pump and treat in full progress. The Transuranic Pits and Trenches is delayed 18 years to 2041 and does not initiate until 2015 at an increase in cost of $66 million. Also extends Waste Isolation Pilot Plant by nine years. Non-compliant with the Idaho Settlement Agreement.
Infrastructure	Six Line-item Construction Projects complete by FY 2002. By 2006, eight additional Line-item Construction Projects identified and complete, and infrastructure projects will continue at a level adequate to ensure integrity of required facilities. Final End State - 2070: Provide infrastructure support services comparable to Environmental Management mission.	Infrastructure will extend by 11 years with a cost increase of $437 million.	Infrastructure will extend by 21 years at an increase cost of $877 million.

Table 2. Preliminary Planning Projections (current year dollars in $K)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Preliminary Planning Projections - Outlays (Table G-1 of the National Discussion Draft)	416,374	449,052*	484,933	518,039	506,593	500,173	522,967	558,768	568,585	4,525,485
Less Mortgage Reduction Activities	0	30,810	31,642	32,496	33,374	34,275	0	0	0	162,597
Sub-total	416,347	418,242	453,291	485,543	473,219	465,898	522,967	558,768	568,585	4,362,888
Plus Privatization Phase I Activities	9,400	18,600	20,500	0	0	0	0	0	0	48,500
Compliance Planning Baseline	425,774	436,842	473,791	485,543	473,219	465,898	522,967	558,768	568,585	4,411,388
Less Additional Efficiencies	0	7,000	9,000	10,000	11,000	13,000	0	0	0	50,000
Compliance Planning Baseline with Efficiencies	425,774	429,842	464,791	475,543	462,219	452,898	522,967	558,768	568,585	4,361,388
Preliminary Planning Projections with Enhanced Performance Goals - Authorization (Table G-2 of the National Discussion Draft)	397,774	408,826	424,826	428,826	448,826	466,826	522,967	558,768	568,585	4,226,224
Funding Shortfall	-28,000	-21,016	-39,965	-46,717	-13,393	13,928	0	0	0	-135,164
									Application of Uncosted Balances	6,000
									Net Funding Shortfall	**-129,164**

* Excludes Long-Range Plan Projects

The Assistant Secretary for Environmental Management has assured INEEL and stakeholders that DOE will meet compliance with all enforceable agreements. To this end, as the Draft 2006 Plan funding scenario is developed, options will be explored to close funding shortfalls. These options include transferring funds from other sources to the INEEL, identification of further program and support efficiencies, and critical analysis of estimates. Both DOE-HQ and INEEL expect to fully resolve any funding shortfalls prior to finalizing the Initial 2006 Plan in early 1998. For years beyond FY-2003, there currently appears to be adequate budgetary resources within the DOE Environmental Management's flat funding profile at the $6.0 billion level to accomplish the INEEL program. This condition results from near term completion of cleanup at other DOE sites, which allows shifting of budget resources to INEEL.

3.3.5 Project Prioritization

The INEEL Environmental Management prioritization process is based on weighted decision criteria to generate an integrated priority list for use in INEEL-wide decision making. The approach focuses on joint DOE-ID and LMITCO participation throughout the process. This helps ensure consensus and awareness of the priority lists as planning, budgeting, and executing activities are carried out.

Evaluating work scope for inclusion in the priority list is based on the following criteria: regulatory compliance, worker health and safety, public health and safety, environmental protection, cost effectiveness, stakeholder trust, and impacts to existing and future missions. Work scope can score in more than one criteria area. The scoring system is such that the overriding criteria takes precedence. For example, an activity that is compliance driven and impacts existing and future mission would be scored under compliance. Only additional benefits beyond the compliance benefits would be scored under the worker health and safety criteria.

A weighting is applied to each scoring criteria and the work scope ranked according to a number of criteria: compliance, stakeholder, mortgage reduction, and cost-to-benefit ratio. Senior management then uses all this information as a tool to develop an overall integrated priority list. The priority list is revised on an as needed basis throughout the year. As funding levels change, work scope that will be affected is identified from the priority list, and the impacts to the program are evaluated. The work scopes are then rolled into appropriate Project Baseline Summaries.

3.3.6 Technology Development Needs

A key component of the INEEL's Discussion Draft is the development and qualification of technologies which can fill the technology gaps required to meet the cleanup commitments defined in the Discussion Draft. Management of this development will be focused on implementation to fill INEEL specific needs with a vision on application to DOE complex-wide problems. This does not preclude pursuing technology development that has direct application to other sites. In addition, the INEEL will ensure development activities align with INEEL business plans supporting the INEEL strategic mission and Long-range Plan.

The INEEL Site Technology Coordination Group has compiled a list of technology needs for the INEEL. The listing of needs and development opportunities were worked closely with each of the Environmental

Management programs to ensure their needs were clearly articulated. Included in this list are Needs, Opportunities, and Science Needs. The Needs identify technology gaps which must be filled for the INEEL's Discussion Draft to be accomplished. The Opportunities identify areas where alternative technologies may be applied which could significantly reduce the cost or risk associated with the baseline technology. The Science Needs have been developed based on evaluations of the Needs and Opportunities looking at areas where a better fundamental understanding may provide for scientific breakthroughs.

Management of the integration of technology development into the Environmental Management Programs (Operations) to optimize technology development will require commitment from both technology development and operations. INEEL's technology development strategy is centered on three main tenets; (1) Focused Needs, (2) Direct Implementation, and (3) Complex-wide Deployment.

Focused Needs: Technology Gaps (needs) will be clearly defined by Environmental Management operations and worked closely with technology development management to ensure requirements are well defined and understood. These are documented in the *Idaho National Engineering Laboratory Environmental Management Technology Development Needs and Opportunities,* (June 1996) report.

Direct Implementation: The Discussion Draft will serve as the basis from which the INEEL Environmental Management specific technology development will be developed. Development activities are defined within the Environmental Management operations schedules, and technology development management will be accountable to meet these schedules once a project consensus is reached.

Complex-wide Deployment: Though projects will be focused directly at INEEL problems, they must also consider application to complex-wide problems. The INEEL focus will ensure implementation while the complex-wide vision will ensure DOE obtains the most for its research investment.

Additionally, this effort differs from past technology road maps in that, the INEEL Environmental Management Integration process has been supported by both LMITCO and DOE-ID management. The INEEL is a partner in developing technologies available across the DOE complex and has been assigned a leadership role for the Mixed Waste and Plutonium Focus Areas, the Environmental Science Program, and the Technology Deployment Initiative. In addition, the INEEL provides significant program and technical support to the Subsurface Contaminants Focus Area. The INEEL has been instrumental in formation of a proposed new Spent Fuel Focus Area.

Many of the technologies developed through INEEL efforts will be applied not only at the INEEL but also at other sites. The national approach to technology development allows the DOE complex to benefit from a larger base of talents and resources.

Technology development also serves as the base from which the INEEL will cultivate a sustainable future by fostering intellectual property and technical expertise, initiating spin-off companies, and increasing industrial competitiveness while bringing revenues back into the INEEL through licenses. While technology development is primarily focused on directly solving INEEL's needs, broader applications, both DOE complex and national, must be included. Long-term high risk research and development initiated

from conception through demonstration provides numerous benefits. The process develops a core of technical expertise to support the development activities. This in itself provides a basis from which future projects can be developed. In addition, the innovation process develops intellectual property (patents, copyrights, know-how, etc.) which can be licensed to bring royalties back into the INEEL and provides the basis diversification of the local economy.

Mixed Waste Focus Area—DOE stores 167,000 cubic meters of mixed low-level and transuranic waste from over 1,400 mixed radioactive and hazardous waste streams at 38 sites. The Mixed Waste Characterization, Treatment, and Disposal Focus Area provides an integrated, multi-organizational, national team to develop technologies that enable or enhance treatment systems for the Department's inventory of mixed radioactive and hazardous waste and to dispose of these low-level and transuranic waste streams in a manner that fulfills regulatory requirements. To accomplish this task, the Mixed Waste Focus Area has established a technical baseline Mixed Waste Focus Area Integrated Technical Baseline, DOE/ID-10524 (January 1996) to form the basis for determining the specific technology development activities that will be supported by the Mixed Waste Focus Area. The technical baseline provides a prioritized list of deficiencies which have resulted in technology development activities which must be filled for DOE to be able to process its mixed waste inventories.

The deficiencies identified within the technical baseline are tied directly to the proposed site treatment plans and provide the schedule requirements for the Mixed Waste Focus Area development activities. The Mixed Waste Focus Area will conduct a critical review of the Discussion Draft to identify potential changes to site treatment plans. These changes will be incorporated into the Mixed Waste Focus Area technical baseline and the schedules which are driving the development activities.

This focus area plans to demonstrate three technologies by the end of FY-1997 to treat at least 90 percent of the DOE's stored mixed waste inventory. The outcome will be waste forms that are reduced in volume, as compared to the volume of stored mixed waste, and meet regulatory requirements for safe, permanent disposal. Technology development is being conducted in the areas of thermal and nonthermal treatment emissions, nonintrusive drum characterization, material handling, and final waste forms.

Plutonium Focus Area—In October 1995, an INEEL team was selected to led the DOE Plutonium Focus Area. The partnership includes DOE-ID, Lockheed Martin Idaho Technologies Company (LMITCO), and Argonne National Laboratory. The Plutonium Focus Area Team was selected because of the INEEL's project management and systems engineering experience and Argonne's technical expertise in dealing with plutonium. The Plutonium Focus Area continues to analyze plutonium stabilization needs and subsequently identifies and recommends candidate topics for concerted research and development efforts. Plutonium Focus Area's technology-specific program recommends solutions to site-specific and complex-wide technology issues associated with plutonium remediation, stabilization, and preparation for final disposition. The Plutonium Focus Area seeks opportunities for participation with industry and universities to develop these technologies.

Environmental Management Science Program—The INEEL is supporting the DOE in the management and implementation of the Environmental Management Science program. The program which

provides for competitive science proposal is offered to DOE laboratories, as well as other Federal laboratories and academic and industrial organizations. To ensure that the program is mission-oriented and that its achievements are recognized and used by Environmental Management, the science program is closely integrated with Technology Development's focus areas and crosscutting programs and is also closely coordinated with DOE's Office of Energy Research to ensure use of broad-based fundamental research and development supported by that office

The overall objectives of the program are to:

- Develop a targeted, long-term basic research agenda for environmental problems so that breakthrough approaches will lead to significantly reduced cleanup costs and risks to workers and the public;

- Bridge the Gap between broad fundamental research that has wide-ranging applicability such as that performed in DOE's Office of Energy Research, and needs-driven applied technology development that is conducted in the DOE's Environmental Management Office of Technology Development;

- Serve as a stimulus for focusing the nation's science infrastructure on critical national environmental management problems.

The INEEL is using a disciplined system engineering approach to develop and maintain a balanced Environmental Management Science Program portfolio germane to the Environmental Management programs. This support provides for systematic assessment of Environmental Management science needs and demonstrate linkage of funded research to Environmental Management assessment and clean-up programs.

Technology Deployment Initiative—The INEEL is supporting implementation of the DOE's Technology Deployment Initiative, which will provide the means and incentives to DOE sites for identifying and deploying technologies and processes for clean-up throughout the DOE complex. Specifically, the mission is to deploy technologies and processes that reduce the DOE Environmental Management mortgage, accelerate site clean-up and support the Discussion Draft goals. Accomplishing this mission will require DOE complex-wide cooperation and coordination in identifying, verifying, implementing, and subsequently deploying environmental technologies. Deployment is defined as implementation of a technology at multiples sites, multiple implementations of a technology at a single DOE site, or multiple site usage of a centralized technology.

3.4 Environmental Restoration (Closure) Projects

Environmental Restoration (Closure) Projects identify and evaluate potentially contaminated areas, devise cleanup strategies, and carry out cleanup as needed. In addition, the projects include D&D of selected surplus facilities.

The INEEL has been divided into ten waste area groups (WAGs) composed of 98 operable units that are grouped together by similar contamination problems or geographic boundaries. WAGs 8 and 9 are managed by the Naval Reactors Facility and Argonne National Laboratory-West, respectively. WAG 8 is not addressed in this summary.

The Argonne National Laboratory-West WAG 9 sites being investigated include tanks and waste waster handling/disposal systems such as ditches, ponds, pits, and drains. WAG 9 is divided into four operable units, resulting in a total of 19 sites. The DOE and Argonne National Laboratory-West are pursuing a strategy for conducting removal actions for CERCLA activities in order to reach a No Further Action ROD. The current schedule outlines completion of the ROD by July 1998, one year ahead of schedule.

The INEEL Environmental Restoration Projects have, since 1991, promoted the use of the Bottoms Up or Activity Based Costing approach in the development of planning estimates for its assessment, remedial design, and remedial action projects. Cost estimates have been developed using sound technical and planning principles, and are accompanied by basis of estimate documentation intended to demonstrate the rationale and specifics behind the estimates. Bottoms Up estimating, or Activity Based Costing, wherein the work scope is portrayed down to the task level, is both desired and encouraged, but not always practical.

The basis of estimates include a well defined statement of work, performance measures, products required for completion, products delivered, key support activities, and known milestones, etc., for every level of the program work scope. For work scope with definable milestones and deliverables, the cost estimates are very detailed and therefor more precise. For more subjective work scope, where it is difficult to identify a specific end-product or deliverable, detail is provided to the lowest level possible. In most cases, the clarity of the available scope and associated planning assumptions is a key consideration in determining the specific technique used to develop a particular cost estimate.

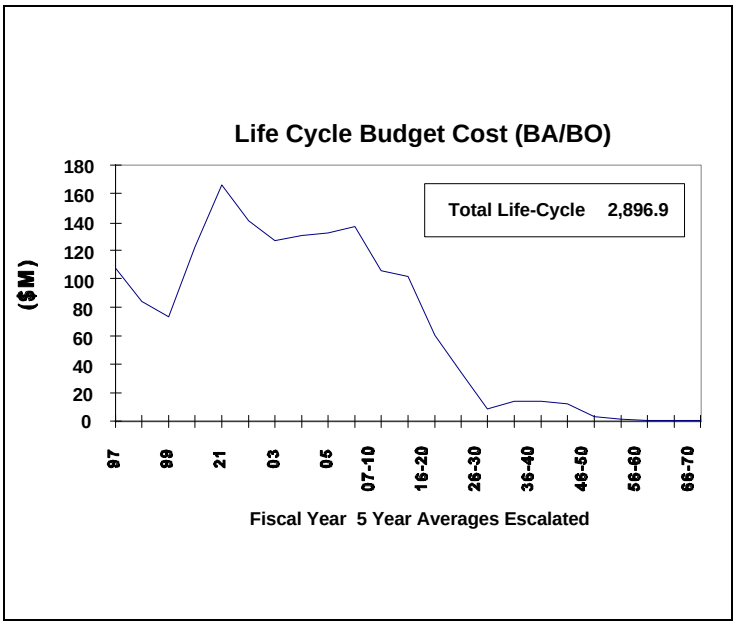

Figure 14. Environmental Restoration (Closure)

Figure 14 shows the life-cycle cost summary associated with the Environmental Restoration Projects. The following general assumptions were used in developing project baseline summaries for the Environmental Restoration Projects.

1. CERCLA documents will be functionally equivalent to NEPA documents so that NEPA requirements are satisfied by the appropriate CERCLA documents. The process of obtaining DOE NEPA approvals will have no impact on the FFA/CO schedules of those currently in progress or being resolved.

2. The regulators will accept the use of common documents that will be used to the maximum extent practicable with specific implementation as amendments.

3. Existing pre-FFA/CO sampling data of sufficient quality to incorporate into the environmental restoration risk assessments can be used to minimize the number of additional samples required.

4. DOE will adapt commercially available treatment processes to DOE waste materials using currently available technology and private sector capability. New technology will be incorporated when appropriate and available.

5. All major environmental restoration sites have been identified. Future new sites will be small and can be evaluated for risk using field surveys, limited lab samples, or can be added to existing Remedial Investigation/Feasibility Study with minimal impact to future baseline planning.

6. An improved low-hazard Safety Analysis Report will be available for field investigations.

7. Public participation, as defined by the integrated NEPA/CERCLA process and the INEEL Community Relations Plan, will not adversely affect the compliance with FFA/CO schedules.

8. Environmental remediation of existing inactive sites at the INEEL will be completed under CERCLA risk-based/technology cleanup criteria as portrayed in the WAG specific assumptions.

9. All preliminary investigations that recommend no further action will be accepted as such by the FFA/CO project managers during comprehensive ROD discussions.

3.4.1 WAG 1, Test Area North FFA/CO Remediation (ID ER-01)

Mission—This project covers the assessment and remediation of Test Area North, WAG 1, at the INEEL. Test Area North encompasses the Technical Support Facility, Initial Engine Test Facility, Loss of Fluid Test Facility, and the Water Reactor Research Test Facility. During the course of its 40 year operating history, contaminants have been introduced into the environment through incidental releases and past waste management practices. The identification of organic contaminants in groundwater at Test Area North resulted in the INEEL being listed on the National Priorities List (Superfund Site). WAG 1 was subdivided into 10 operable units containing a total of 94 potential release sites. Contaminants of concern included radionuclides, metals, organics, and acids. Of the 94 potential release sites in WAG 1, 13 were assigned as no action (no characterization/cleanup required) in the FFA/CO, 30 were identified as no action in the ROD, and three were eliminated through CERCLA removal actions performed to eliminate potential

ongoing releases to the environment. In addition, an interim action was performed to remove contaminated sludges from an injection well and treat contaminated ground water, and a final action ROD was signed requiring continued cleanup of contaminated groundwater at Test Area North.

Scope—Current activities include the characterization of the remaining operable units, which is the comprehensive evaluation of all remaining WAG 1 potential release sites not designated as no action, with a ROD being required for all the operable units, either separately or combined into the WAG 1 Comprehensive Remedial Investigation/Feasibility Study ROD and the resulting Remedial Design(s)/ Remedial Action(s). The OU 1-10 Comprehensive Remedial Investigation/Feasibility Study is designed to determine the cumulative risk to human health and the environment from all of the release sites and is the last investigation to be performed at Test Area North. The Remedial Design/Remedial Action will implement the cleanup selected in the OU 1-10 ROD. Additionally, the project continues to implement the final action ROD for OU 1-07B (Groundwater Remediation). This remedial action is designed to reduce organic contaminants present in the Snake River Plain Aquifer to acceptable levels within the next 100 years. These activities are being conducted as specified in the tri-party (DOE, EPA, and the State of Idaho) FFA/CO and CERCLA. Completion of these activities support the goal of removing the INEEL from the National Priorities List (Superfund Site).

2006 End State—It is assumed that as a result of this effort and the Environmental Management objectives, INEEL environmental restoration will be completed through the OU 1-10 Comprehensive Remedial Investigation/Feasibility Study, OU 1-10 ROD, and subsequent Remedial Design/Remedial Action activities. The exception will be OU 1-07B, which will continue groundwater treatment and on-going long-range surveillance and maintenance activities. All known OU 1-10 cleanup actions will be completed, and the OU 1-07B cleanup action will provide containment of the contaminant plume (maintain its current location on the INEEL) while the aquifer undergoes active remediation. Surplus facilities that are currently in the Environmental Management Program will have been stabilized and/or demolished.

Final End State—Required long-range surveillance and maintenance activities will be ongoing to maintain containment of potentially entombed contaminated surplus facilities at Test Area North. Long-term groundwater pump and treat operations as required by the OU 1-07B ROD will continue through 2025.

Cost—Escalation is included from FY-1999 out. Escalation rates used for FY-1999 through FY-2006 are 2.7 percent compounded. After FY-2006 the FY-2006 escalation rate is used. The cost estimates associated with this project baseline summary are based on completing the enforceable milestone

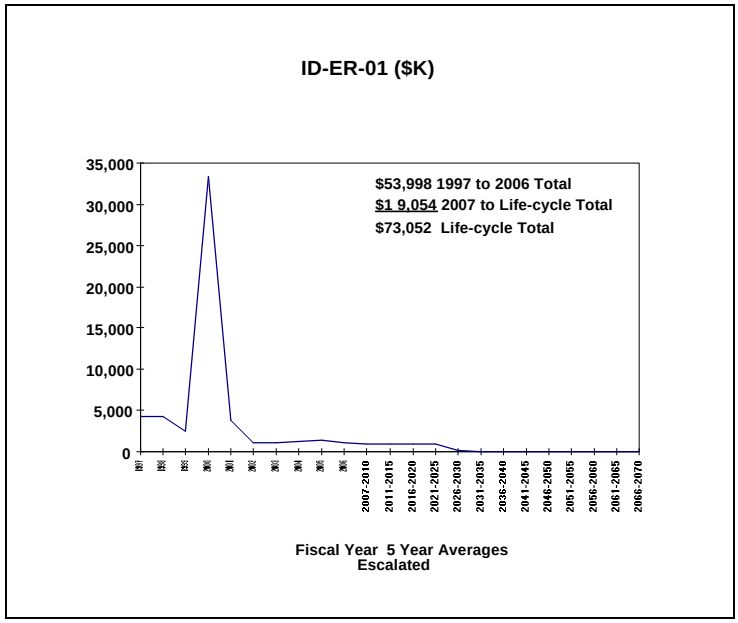

Figure 15. WAG 1 Life-cycle Cost

requirements identified in the FFA/CO. Figure 15 shows the life-cycle costs associated with the WAG 1 Environmental Restoration Projects. The baseline costs represented here do not include contingency.

Major Milestones—Milestone dates are per agency agreement to resolve disputes (March 18, 1997).

May 1997	OU 1-10 Draft Remedial Investigation/Feasibility Study report sent by DOE-ID to the EPA and he Idaho Department of Health and Welfare (IDHW) for review and comment
June 1997	Revised OU 1-07B Remedial Design/Remedial Action Scope of Work sent by DOE-ID to EPA and IDHW for review and comment
May 1998	OU 1-10 Draft Remedial Investigation/Feasibility Study ROD sent by DOE-ID to EPA and IDHW for review and comment
April 1999	OU 1-07B Phase B-Draft Remedial Design/Remedial Action Work Package sent to DOE-ID, DOE-HQ, EPA, and IDHW for review
February 11, 1998	OU 1-07B Phase B Draft Pilot Scale Work Plan sent to DOE-ID, EPA, and IDHW
January 24, 2000	OU 1-10 Draft Remedial Design/Remedial Action Work Plan sent by DOE-ID to EPA and IDHW for review and comment
February 2, 2000	OU 1-07B Phase C-Draft Remedial Design/Remedial Action Work Plan sent to DOE-ID, DOE-HQ, EPA, and IDHW for review
January 9, 2001	OU 1-10 Draft Remedial Action Report sent by DOE-ID to EPA and IDHW for review and comment

3.4.2 WAG 2, Test Reactor Area FFA/CO Remediation (ID ER-02)

Mission—This project provides for the assessment and remediation of the Test Reactor Area WAG 2, at the INEEL. The various waste release sites have been grouped into 13 operable units based on the similar nature of the releases. The 13 operable units are composed of known and suspected releases from disposal ponds, waste lines, underground storage tanks, and other incidental releases resulting from facility operations. Contaminants of concern include radionuclides, polychlorinated biphenols, metals, and organics. Assessment of WAG 2 includes characterizing potential hazardous substance release units to determine the nature and extent of contamination; determining and documenting whether or not any contamination found constitutes unacceptable risk to human health and the environment; determining the feasibility of various remedial alternatives to reach consensus on a proposed cleanup action with the regulatory agencies; and issuing a ROD. Currently, all waste release sites at WAG 2 have been evaluated to determine contamination levels at the site. The WAG 2 Remedial Investigation/ Feasibility Study determined that eight of the sites at the WAG 2 pose an unacceptable risk to human health and the environment and therefore, must be remediated. Remediation of the low-level radioactive and/or hazardous substance release sites in WAG 2 will be performed to reduce the contamination and associated risk to acceptable levels. At the time of the initial project baseline summary submittal, the DOE, EPA, and State of Idaho had not reached a final decision as to the appropriate mechanism by which the eight contaminated sites will be remediated. Public meetings were completed in March and public comments have been

incorporated in the Draft ROD. This project directly supports completion of regulatory requirements with enforceable milestones defined in the INEEL FFA/CO and Idaho Settlement Agreement.

Scope—The scope of this project includes the monitoring of perched water located below the Test Reactor Area, as required in the OU 2-12 ROD; completing the OU 2-13 Comprehensive Remedial Investigation/Feasibility Study Report; completing the proposed plan for the OU 2-13 Final Comprehensive Remedial Investigation/Feasibility Study Project; preparing, submitting, and finalizing the OU 2-13 Comprehensive Remedial Investigation/Feasibility Study ROD; performing remedial design and initiating remedial action or monitoring as required; completing the remedial action; and initiating operations and maintenance activities.

2006 End State—By 2006, all accessible contaminated soil sites will be remediated. Soils under buildings and in areas of active Test Reactor Area operations will be under institutional controls to meet remedial action objectives by the year 2000.

Final End State—Long-range surveillance and maintenance activities will be ongoing. Institutional controls will be in place and maintained. It is anticipated that Test Reactor Area facilities will remain in operation until at least 2015, therefore remediation of contaminated soil in areas of active Test Reactor Area operations will not be completed until Test Reactor Area operations cease. Institutional controls in these areas will be invoked by 2000 and will remain in place until remediation occurs.

Cost—Planning rates used to develop these estimates were the latest contractor approved rates as of February 1996. Escalation rates for FY-1999 through FY-2006 are 2.7 percent compounded. Post FY-2006 escalation rate is the same as FY-2006. The cost estimates associated with the Project baseline summary are based on completing the enforceable requirements identified in the FFA/CO. Figure 16 shows the life-cycle costs associated with the WAG 2 Environmental Restoration Projects. The baseline costs represented here do not include contingency.

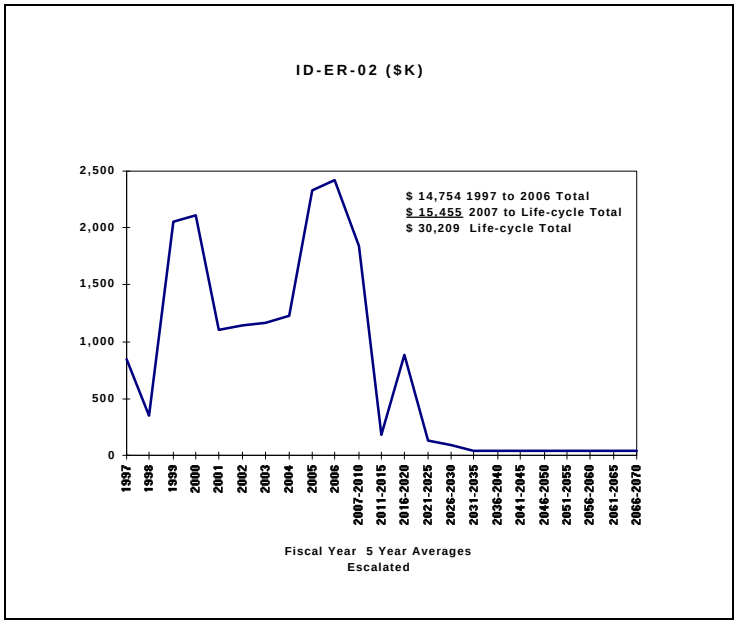

Figure 16. WAG 2 Life-cycle Cost

Major Milestones—

June 25, 1997	OU 2-13 Draft Remedial Investigation/Feasibility Study ROD sent by DOE-ID to EPA and IDHW for review and comment
July 16, 1998	OU 2-13 Draft Remedial Design/Remedial Action Work Plan sent by DOE-ID to EPA and IDHW for review and comment

3.4.3 WAG 3, Idaho Chemical Processing Plant FFA/CO Remediations (ID-ER-03)

Mission—The purpose of this project is to complete assessment, remedial design/remedial action cleanup, and long-term monitoring and maintenance activities for the Idaho Chemical Processing Plant, WAG 3. The Idaho Chemical Processing Plant includes facilities for spent nuclear fuel storage, a waste solidification facility and related waste storage bins, remote analytical laboratories, and a coal-fired steam generation plant. WAG 3 is comprised of 95 potential release sites divided into 14 operable units based on the nature of the potential release. These sites include contaminated pits, french drains, perched and aquifer water, percolation ponds, rubble piles, spills, storage areas, tanks, an injection well, and windblown areas. Contaminants of concern include radionuclides, metals, organics, and acids. Assessment of release sites at Idaho Chemical Processing Plant includes characterizing the nature and extent of the contamination at each release site; determining and documenting impacts to human health and the environment; and evaluating various alternatives for remediation of the sites. Remaining assessment activities include completion of the OU 3-13 Remedial Investigation/Feasibility Study Report and development of the Proposed Plan and ROD documenting the decision process for remedy selection. Remedial Design/Remedial Action will include engineering design of the selected cleanup actions to be taken, contractor procurement, and cleanup construction activities. Monitoring and maintenance will include activities required for long-term operation of the selected remedy and final project closeout such as groundwater sampling and repairs to soil caps.

Scope—The scope of assessment activities include completing the OU 3-13 Comprehensive Remedial Investigation/Feasibility Study Report; completing the OU 3-13 Comprehensive Remedial Investigation/Feasibility Study Proposed Plan and conducting public meetings; completing the OU 3-13 Comprehensive Remedial Investigation/Feasibility Study Report ROD; providing technical support for all WAG 3 activities including continued investigation of new units; conducting Remedial Design/Remedial Action scoping with the DOE, EPA, and the State of Idaho; and preparing the preliminary Remedial Design/Remedial Action Scope of Work.

The scope of cleanup activities include completing the Remedial Design/Remedial Action Scope of Work; completing the Remedial Design/Remedial Action Work Plan; submitting a Preliminary Remedial Design; conducting contractor procurement activities; completing the environmental, safety, and health plan; completing the Auditable Safety Analysis; performing the remedial action construction activities; completing the Remedial Action Report; performing the post-ROD Monitoring; and performing the long-term remedy monitoring and maintenance.

2006 End State—By 2006, all contaminated soil sites, except the tank farm and soil under buildings, will be remediated. Tank farm soil and soil under buildings will be under institutional controls to meet remedial action objectives by 2005. Institutional controls will be in place for all WAG 3 sites by 2005. Monitoring and maintenance activities will continue beyond 2006. An interim remedy will be implemented at the tank farm by 2005.

Final End State—RCRA closure of the tank farm is planned to begin in 2009 and expected to be completed before 2035. This will include stabilization of the tank heels, filling the voids inside all tanks,

and vaults with grout, and removing all support buildings within the tank farm fence line. Facilities that are immediately adjacent to the tank farm are expected to be through D&D completion by 2044.

A cap will be constructed over the tank farm when the RCRA closure and D&D actions have sufficiently progressed. The cap will prevent water infiltration and exposure to contaminants at the surface and will meet all requirements for CERCLA remediation and RCRA closure. Monitoring and maintenance of the tank farm cap will begin after completion of the cap construction. It is assumed that new tanks needed for the high-level waste program will not interfere with installation of the cap. Thirty years of post remediation long-term monitoring and maintenance is assumed to maintain the cap and verify remedial actions.

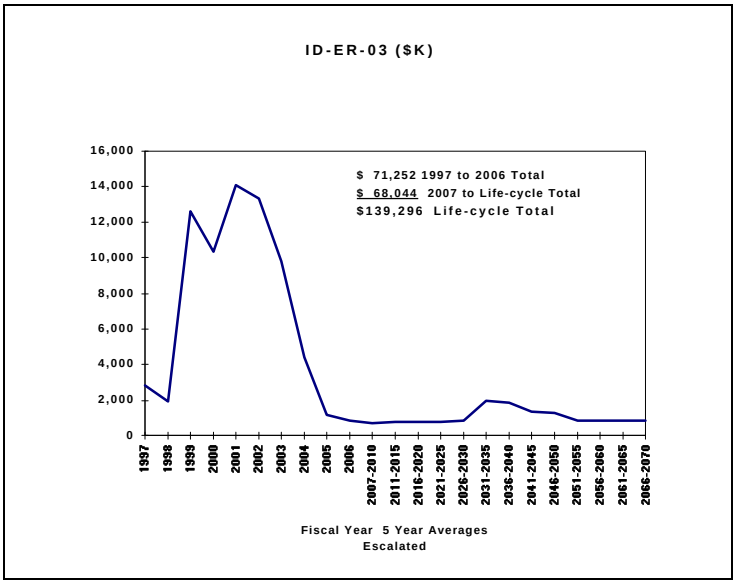

Figure 17. WAG 3 Life-cycle Cost

Cost—The baseline costs represented here do not include contingency. Figure 17 shows the life-cycle costs associated with the WAG 3 Environmental Restoration Projects.

Major Milestones—

September 1997	OU 3-13 Draft Remedial Investigation/Feasibility Study Report sent by DOE-ID to EPA and IDHW for review and comment
July 1998	OU 3-13 Draft Remedial Investigation/Feasibility Study ROD sent by DOE-ID to EPA and IDHW for review and comment
March 1999	OU 3-13 Draft Remedial Design/Remedial Action Work Package sent by DOE-ID to EPA and IDHW for review and comment (Post-ROD enforceable milestone - TBD following ROD)
March 2004	OU 3-13 Draft Remedial Action Report sent by DOE-ID to EPA and IDHW for review and comment (Post-ROD enforceable milestone - TBD following ROD)
March 2004	OU 3-13 Draft O&M Report sent by DOE-ID to EPA and IDHW for review and comment (Post-ROD enforceable milestone - TBD following ROD)
September 2047	Remedial Action and an Operation and Maintenance report will be sent to EPA and IDHW for review and comment

3.4.4 WAG 4, Central Facilities Area FFA/CO Remediations (ID-ER-04)

Mission—This project covers the assessment, cleanup, and remediation of the Central Facilities Area, WAG 4, at the INEEL. WAG 4 consists of 52 sites divided into 13 operable units in and around the Central Facilities Area. The 52 sites are composed of landfills, underground storage tanks, above-ground storage tanks, french drains, soil contamination areas, a sewage treatment plant, and disposal ponds. Field sampling will be completed to determine the nature and extent of contamination including petroleum, radiological, organic, and metal constituents. Completion of activities contained in this project baseline summary support the removal of the INEEL from the National Priorities List.

Scope—The cleanup of CERCLA sites at WAG 4 is governed by the INEEL FFA/CO, under which a Comprehensive Remedial Investigation/Feasibility Study for WAG 4 will be completed. The decision-making process for integration of Environmental Restoration cleanup and facility operations is tied to the CERCLA ROD, which includes stakeholder participation.

2006 End State—By 2003, all known contaminated sites at WAG 4 will be remediated. Institutional controls, if necessary, will be in place for all WAG 4 sites by 2003. Monitoring and maintenance activities, as required by the FFA/CO and CERCLA will continue beyond 2006.

Final End State—It is assumed that as a result of this Plan and the Environmental Management objectives, INEEL environmental restoration at WAG 4 will be completed and long range surveillance and maintenance activities will be ongoing. All known remediations will be completed, or ongoing, and the major sources of contamination will be under control. Surplus facilities will have been stabilized and/or demolished. Long-term activities include groundwater monitoring, soils analysis, air monitoring, moisture monitoring in the vadose zone, the maintenance of institutional controls, and the repair and filling in of subsidences. Five-year CERCLA reviews will be conducted to ensure the objectives of the OU 4-13 ROD are realized.

Cost—The cost estimates associated with this project baseline summary are based on completing the enforceable requirements identified in the FFA/CO. Figure 18 shows the life-cycle costs associated with the WAG 4 Environmental Restoration Projects. The baseline costs represented here do not include contingency.

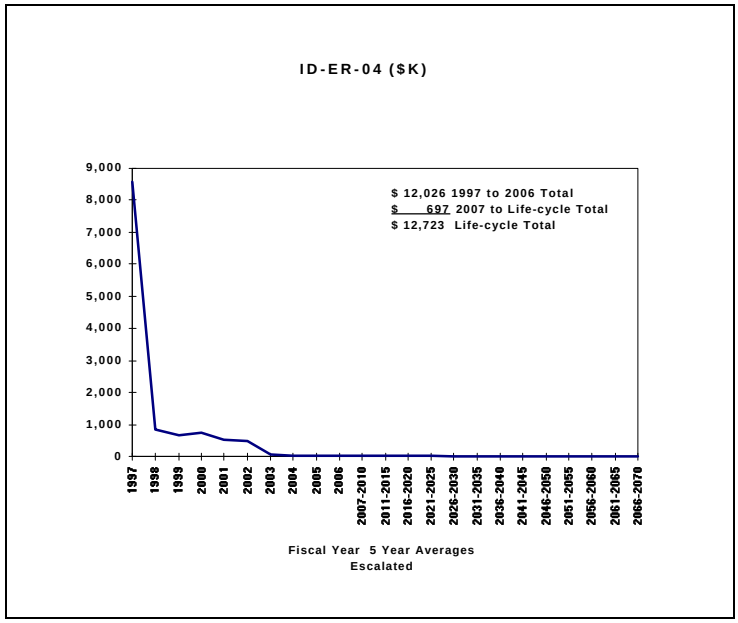

Figure 18. WAG 4 Life-cycle Cost

Major Milestones—

September 1998	OU 4-13 Draft Remedial Investigation/Feasibility Study Report sent by DOE-ID to EPA and IDHW for review and comment
July 1999	OU 4-13 Draft Remedial Investigation/Feasibility Study ROD sent by DOE-ID to EPA and IDHW
July 2002	OU 4-13 Draft Remedial Action Report sent by DOE-ID to EPA and IDHW for review and comment

3.4.5 WAG 5, Power Burst Facility FFA/CO Remediations (ID-ER-05)

Mission—This project baseline summary provides for the assessment and cleanup of the Power Burst Facility/Auxiliary Reactor Area, WAG 5, at the INEEL in accordance with the FFA/CO. Work at each operable unit includes an assessment of the contaminants, either through field sampling and analysis, or records search in what is called the Track 1 or Track 2 process. Depending on the outcome of the assessment, specific sites within the operable unit may require a risk assessment with the results documented in a Remedial Investigation/Feasibility Study. Those sites found to be a threat to human health or the environment are studied to determine the best method for correcting the problem. These phases are driven by an enforceable schedule that contains significant penalties if the dates are not met or the actions are not completed. WAG 5 is divided into 13 operable units, which identify specific past or suspected contaminant releases. These operable units include 53 potential sites located at or near the Power Burst Facility Auxiliary Reactor Area and include all the Special Power Excursion Reactor Test facilities. The 13 operable units are in different stages of the process defined above. OU 5-12 has been designed to consider the comprehensive risk of all the WAG 5 sites and is intended to be the final ROD for WAG 5.

Scope—Current planning includes the evaluation of risks for the two remaining operable units, with RODs being reached for all operable units, either separately or combined in the WAG 5 Comprehensive Remedial Investigation/Feasibility Study ROD, in FY-1999. This will result in Remedial Design(s)/ Remedial Action(s) for any sites determined to present a risk to human health or the environment.

2006 End State—By 2003, all known contaminated sites at WAG 5 will be remediated. Institutional controls, if necessary, will be in place for all WAG 5 sites by 2003. Monitoring and maintenance activities, as required by the FFA/CO and the CERCLA, will continue beyond 2006.

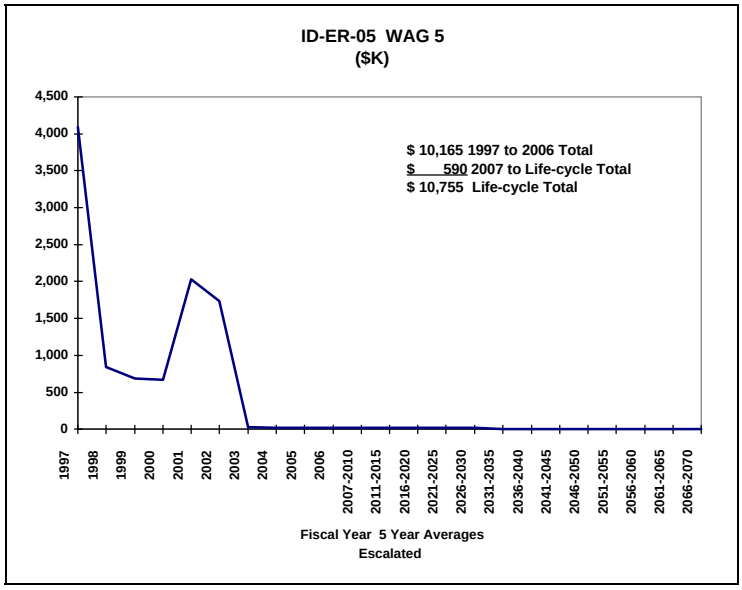

Figure 19. WAG 5 Life-cycle Cost

Final End State—Monitoring and maintenance of the SL-1/BORAX cap and other required cleanup sites will continue. Additional sites may have long-term monitoring and maintenance requirements and include the ARA-02 septic tanks and the radiologically contaminated soils at ARA-23 and ARA-24. These long-term items will continue until at least 2031. Other commitments may be made in the OU 5-12 Comprehensive ROD due to be signed by DOE, EPA, and the State of Idaho in October 1999.

Cost—The cost estimates associated with this project baseline summary are based on completing the enforceable requirements identified in the FFA/CO. Figure 19 shows the life-cycle costs associated with the WAG 5 Environmental Restoration Projects. The baseline costs represented here do not include contingency.

Major Milestones—

February 1997	OU 5-12 Draft Remedial Investigation/Feasibility Study Work Plan sent by DOE-ID to EPA and IDHW for review and comment
May 1998	OU 5-05 and OU 6-01 Draft Remedial Action Report sent by DOE-ID to EPA and IDHW for review and comment
August 1998	OU 5-12 Draft Remedial Investigation/Feasibility Study Work Plan sent by DOE-ID to EPA and IDHW for review and comment
July 1999	OU 5-12 Draft Remedial Investigation/Feasibility Study ROD sent by DOE-ID to EPA and IDHW for review and comment
June 2000	OU 5-12 Draft Remedial Design/Remedial Action Work Package sent by DOE-ID to EPA and IDHW for review and comment
June 2002	OU 5-12 Draft Remedial Action Report sent by DOE-ID to EPA and IDHW for review.

3.4.6 WAG 7, Radioactive Waste Management Complex FFA/CO Remediations (ID-ER-06)

Mission—Assessment and cleanup activities for WAG 7 at the Radioactive Waste Management Complex are necessary to evaluate the risk to human health and the environment, and to remediate the site. Activities being conducted as part of this project include field sampling of groundwater and vadose zone volatiles, Baseline Risk Assessment and Remedial Investigation of the site, fate and transport modeling of contaminants, Treatabiliy/Feasibility Studies, Remedial Investigation/Feasibility Study report preparation, Proposed Plan and ROD preparation, and Remedial Design/Remedial Action scoping and implementation. This project directly supports the requirements of the FFA/CO that implements CERCLA at the INEEL for the assessment and remediation of the Radioactive Waste Management Complex. Remedial action is being performed for OU 7-08, organic contamination in the Vadose Zone, and remedial action is complete for OU 7-12 Pad A, except for maintenance and monitoring requirements.

Scope—Waste disposed at the Subsurface Disposal Area includes mixed low-level radioactive waste and transuranic contaminated mixed waste, all of which is contained in various forms and packages buried in the 97-acre Subsurface Disposal Area. The assessment phase will investigate, characterize, and quantify

the nature and extent of contamination. To accomplish this, WAG 7 Comprehensive Pits and Trenches Remedial Investigation/Feasibility Study; the Transuranic Pits and Trenches Remedial Investigation/Feasibility Study (OU-13); and the WAG 7 Comprehensive Remedial Investigation/ Feasibility Study (OU 7-14) were combined into one Comprehensive Remedial Investigation/Feasibility Study (OU 7-13/14). Routine monitoring of the groundwater, vadose zone, and Pad A are currently being performed in support of the Comprehensive Remedial Investigation/Feasibility Study. The cleanup phase will implement a Remedial Action alternative that achieves acceptable risk levels and meets the State of Idaho, Federal, and DOE Applicable or Relevant and Appropriate Requirements. Remedial actions will continue to be performed for OU 7-08, organic contamination in the vadose zone; OU 7-12, Pad A; and initiated for OU 7-13/14.

2006 End State—By 2006, routine and verification monitoring for Groundwater Pathways (OU 7-06), remedial action for organic contamination in the Vadose Zone (OU 7-08), and remedial action for the comprehensive pits and trenches (OU 7-13/14) will be in progress. For OU 7-13/14, the Remedial Design/Remedial Action Statement of Work, Remedial Design/Remedial Action Work Plan, Operational Readiness Review, and the construction and systems testing will be complete. The operational phase of remediation will have been initiated.

Final End State—By 2016, retrieval and treatment of waste for OU 7-13/14 will be complete and treated waste will have been shipped to the Waste Isolation Pilot Plant for disposal. By 2022, a cap over the Subsurface Disposal Area will have been installed and all D&D completed. By 2052, the 30-year maintenance and monitoring requirement of the site will be completed. All remediation activities for WAG 7 will be conducted under OU 7-13/14.

Cost—The cost estimates associated with this project baseline summary are based on completing the enforceable requirements identified in the FFA/CO. Figure 20 shows the life-cycle costs associated with the WAG 7 Environmental Restoration Projects. The baseline costs represented here do not include contingency.

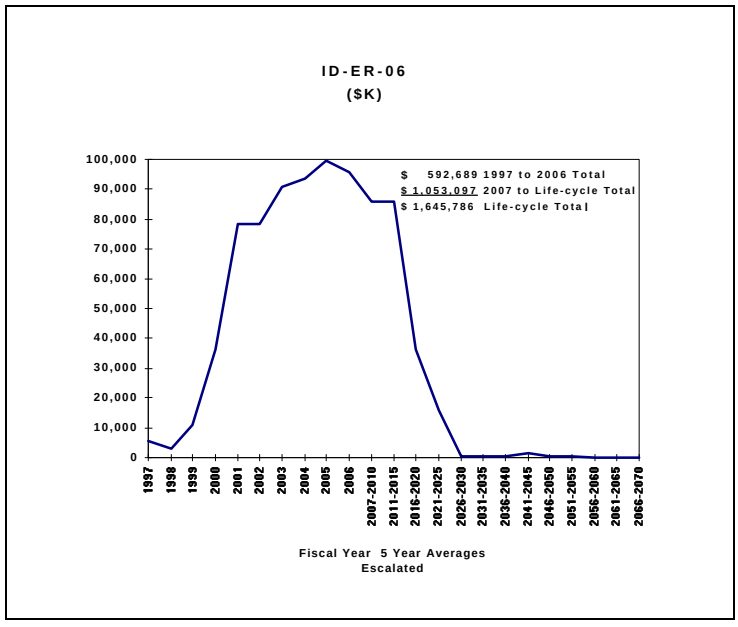

Figure 20. WAG 7 Life-cycle Cost

Major Milestones—

April 2000	OU 7-13/14 Draft Remedial Design Work Plan sent to DOE-ID to EPA and IDHW for review and comment

September 2002	OU 7-13/14 Draft Remedial Design/Remedial Action Work Plan sent by DOE-ID to EPA and IDHW for review and comment
July 2004	OU 7-08 Draft Remedial Action Report sent by DOE-ID to EPA and IDHW for review and comment
March 2005	OU 7-08 Draft O&M Report sent by DOE-ID to agencies for revision
April 2005	OU 7-13/14 Draft. Remedial Action Report sent to DOE-ID to EPA and IDHW for review and comment
March 2022	OU 7-13/14 Draft. O&M Report sent to DOE-ID to EPA and IDHW for review and comment

3.4.7 Pit 9, FFA/CO Interim Actions (ID-ER-07)

Mission—Pit 9 is a fixed price, performance based project where a private subcontractor will design, construct, own, and operate a facility at the INEEL to exhume, treat, and stabilize up to 250,000 cubic feet of buried transuranic and hazardous waste, and contaminated soil buried at the Subsurface Disposal Area. The contaminants will be chemically treated or encased in a basalt-like slag and stored awaiting final disposal. Information and technologies from the Pit 9 Project will be used to support remediation decisions on the other transuranic pits and trenches at the Subsurface Disposal Area. To date (2/97), the treatment facility construction is 43 percent complete, the retrieval facility construction is 80 percent complete, and construction of the support facilities are 91 percent complete.

On March 18, 1997 a settlement agreement was signed between the DOE, EPA, and the State of Idaho to resolve enforcement issues associated with a schedule slip for this project. The settlement agreement provides a process for establishing a new schedule.

Scope—The Pit 9 Project is a CERCLA Interim Action at the INEEL. Retrieval and treatment facilities will be designed, built, owned and operated by a private subcontractor. Up to 250,000 cubic feet of waste and soil from Pit 9 will be remotely exhumed. This interim action is intended to remove the source of contamination to acceptable levels. After retrieval, the waste and soil will be chemically and thermally treated remotely. The hazardous organics will be destroyed and the plutonium, americium, other radionuclides, and hazardous inorganics will be encapsulated in a glass-like slag. The slag will be stored until a final disposal site is chosen.

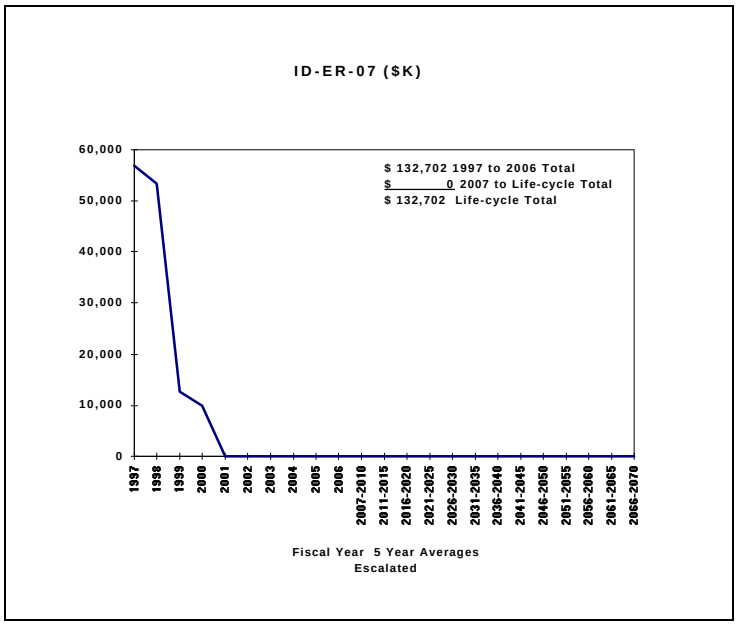

Figure 21. Pit 9 Life-cycle Cost

Under CERCLA, the Pit 9 ROD was prepared with stakeholder involvement and signed in October 1993. This interim action is mandated by the INEEL FFA/CO.

2006 End State—Complete decontamination and decommissioning of the Pit 9 facility.

Final End State—Complete decontamination and decommissioning of the Pit 9 facility.

Cost—Field work is being performed under a fixed-price subcontract. The subcontract price is based on the defined scope and requirements at the time of subcontract award. Contingency is included in these estimates. The cost estimates associated with this project baseline summary are based on completing the enforceable requirements identified in the INEEL FFA/CO. Figure 21 shows the life-cycle costs associated with the Pit 9 Environmental Restoration Project. The baseline costs represented here do not include escalation.

Major Milestones—

January 1996	OU 7-10 [RA] Pre-Final Comprehensive Remedial Design sent by DOE-ID to EPA and IDHW for review
February 1996	OU 7-10 [RA] Draft Remedial Action Work Plan sent by DOE-ID to EPA and IDHW for review and comment
90 days after completion of Full Scale Operations	OU 7-10 [RA] Draft Operation and Maintenance Report sent by DOE-ID to EPA and IDHW for review and comment
60 days after Final Inspection	OU 7-10 [RA] Draft Remedial Activity Report sent by DOE-ID to EPA and IDHW for review

3.4.8 WAG 10, INEEL Wide FFA/CO Remediation (ID-ER-08)

Mission—This project covers the assessment and remediation of both WAG 6 and WAG 10 at the INEEL. WAG 6 consists of the Experimental Breeder Reactor and the Boiling Water Reactor Experiment areas. Both the Experimental Breeder Reactor and the Boiling Water Reactor areas have been decommissioned. The Experimental Breeder Reactor is now a National Historic Landmark open to the public. Historically, the area housed five different reactors, but many of the facilities were dismantled or moved and only monitoring takes place in the area. WAG 10 includes miscellaneous surface sites and liquid disposal areas throughout the INEEL. WAG 10 also includes regional Snake River Plain Aquifer concerns related to the INEEL that cannot be addressed on a WAG specific basis. The 12 WAG 6/10 operable units include 34 potential release sites and the Snake River Plain Aquifer. The various release sites have been grouped into 12 operable units based on the nature of the potential release and together comprise WAG 6/10.

Scope—This project includes completing the OU 10-03 ordnance assessment per FFA/CO; completing the OU 10-04 Comprehensive Remedial Investigation/Feasibility Study per the FFA/CO; completing the

OU 10-04 Remedial Investigation/Feasibility Study ROD per the FFA/CO; implementing the OU 10-04 the Remedial Decision/Remedial Action per the FFA/CO and the OU 10-04 ROD; and implementing long-term INEEL groundwater monitoring per the OU 10-04 ROD. Completion of these activities support the goal of removing the INEEL from the National Priority List Superfund Site.

2006 End State—All assessment and remediation activities will be complete. Long-term site-wide groundwater monitoring will be ongoing.

Final End State—Long-term groundwater monitoring and administrative controls will continue.

Cost—The cost estimates associated with this project baseline summary are based on completing the enforceable milestones identified in the FFA/CO. Figure 22 shows the life-cycle costs associated with the WAG 10 Environmental Restoration Projects. The baseline costs represented here do not include contingency.

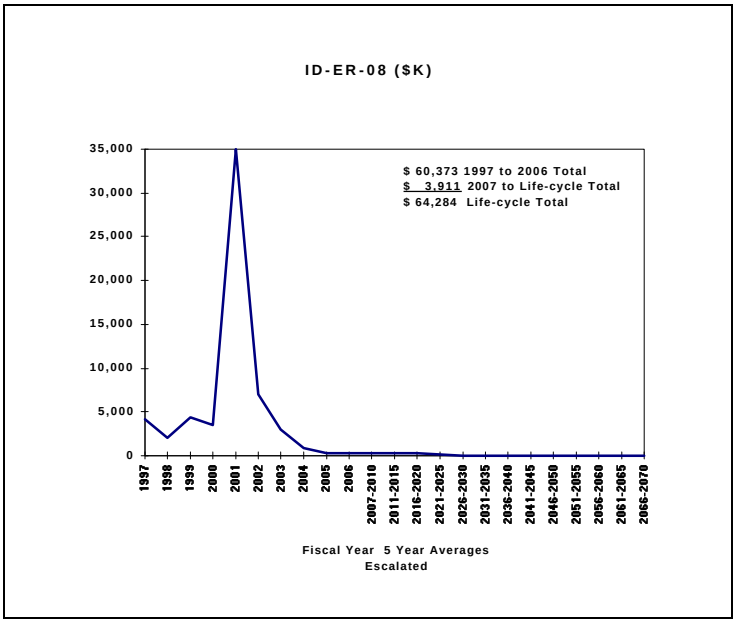

Figure 22. WAG 10 Life-cycle Cost

Major Milestones—

July 2000	OU 10-04 Draft Remedial Investigation/Feasibility Study Report sent by DOE-ID to EPA and IDHW for review and comment
May 2001	OU 10-04 Draft Remedial Investigation/Feasibility Study ROD sent by DOE-ID to EPA and IDHW for review and comment
October 2002	OU 10-04 Draft Remedial Design/Remedial Action Work Package sent by DOE-ID to EPA and IDHW for review and comment
December 2004	OU 10-04 Draft Remedial Action Report sent by DOE-ID to EPA and IDHW for review and comment

3.4.9 Environmental Restoration Operations (ID-ER-09)

Mission—The purpose of this project baseline summary is to provide technical and administrative support to the other Environmental Restoration Project Baseline Summary managers. The final end state ensures that the INEEL can be administratively removed from the National Priorities List and that configuration and records management ensures long-term availability of information associated with the decision-making process.

Scope—The scope of this project includes all activities are required to complete compliance related program management support work associated with the INEEL Environmental Restoration Program implementation/execution of assessment and cleanup activities described in the FFA/CO Action Plan, and the D&D Program. These activities include the development and implementation of systems for program formulation, execution, and tracking including relevant project management control systems and requirements.

2006 End State—The current cost basis for program and project management will be reduced while maintaining a resource base to ensure programmatic continuity and long-term effectiveness for all remaining Environmental Restoration work scope. This includes WAG level (control account) management and program/project management activities. Under this scenario, management costs will be incrementally reduced and/or eliminated commensurate with the completion of remediation activities, ultimately resulting in the provision of project management only for remaining surveillance and maintenance and operations work scope.

Final End State—Beyond FY-2006, program management support costs will be incrementally reduced and/or eliminated commensurate with the completion of remediation activities, ultimately resulting in the provision of project management only for remaining D&D surveillances, maintenance, and operations work scope.

Cost—The cost estimates associated with this project baseline summary are based on completing the enforceable requirements identified in the FFA/CO. Figure 23 shows the life-cycle costs associated with the Environmental Restoration Operations Project. The baseline costs represented here do not include contingency.

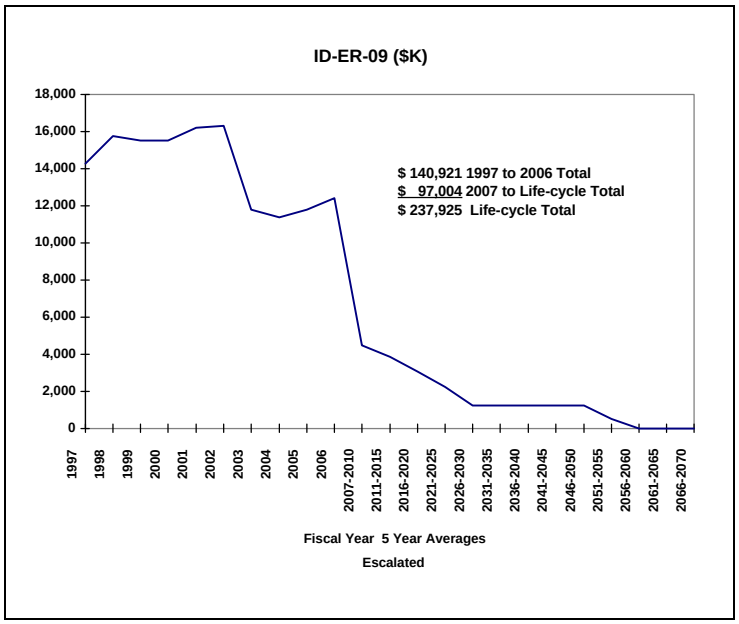

Figure 23. Environmental Restoration Operations Life-Cycle Cost

Major Milestones—

September 1997	Commence submitting project baseline summaries and updates
September 2030	Complete final Project Baseline Summary

3.4.10 Decontamination and Decommissioning (ID-ER-10)

Mission—The INEEL has been the lead laboratory in reactor development and testing since 1949, and has constructed and operated 53 test or experimental reactors. Two reactors at the Test Reactor Area and three reactors at Argonne National Laboratory-West are still operational, but most have been deactivated or decommissioned to varying degrees.

Numerous ancillary facilities and structures were required for reactor support services. The main reactor and reactor support areas at the INEEL are: Test Area North, Naval Reactors Facility, Test Reactor Area, Idaho Chemical Processing Plant, Central Facilities Area, Power Burst Facility, Auxiliary Reactor Area, Argonne National Laboratory-West, Radioactive Waste Management Complex, and the Experimental Breeder Reactor area.

Scope—The cope of this project includes the total decontamination, dismantlement, and removal of facilities, with specific entombment applications of specified surplus contaminated facilities. The contaminated surplus facilities and structures will be transferred into the EM-40 D&D Program after they have been deactivated by EM-60. Deactivation and D&D continue to work closely to integrate work efforts, thus reducing overall life-cycle cost. The contaminated surplus facilities and structures transfer process is an ongoing operation and will continue throughout the life of the INEEL D&D Program. There are a total of 215 contaminated surplus facilities and structures at the INEEL (known, existing, and/or planned future facilities/structures).

2006 End State—The following projects will be completed: complete D&D of Test Area North Technical Support Facilities; complete D&D of Test Area North/Core Test Facility Ancillaries; complete D&D of other ancillaries; complete D&D of Test Reactor Area; complete D&D of Power Burst Facilities; and complete Phase I INEEL On-site Low-level Waste Disposal Facility.

Final End State—All facilities awaiting D&D require surveillance and maintenance to maintain containment and alleviate the industrial hazards associated with degrading facilities and structures.

Cost—The INEEL Inactive Sites Department utilizes detailed activity-based cost estimates when a project is in the active planning and engineering phase. These detailed costs estimates are broken down into project specific quantities. Outyear D&D cost estimates are based upon the Environmental Management Integration Program Parametric Model developed in 1995 and further refined in 1996. This model does not include waste disposal costs. Figure 24 shows the life-cycle costs associated with the D&D Environmental Restoration Projects.

The INEEL On-Site Low-level Waste Disposal Facility Estimate is based upon the Management Alternatives for INEEL CERCLA and D&D Soils Technical Memorandum (INEEL-96/0286). The baseline costs represented here do not include contingency.

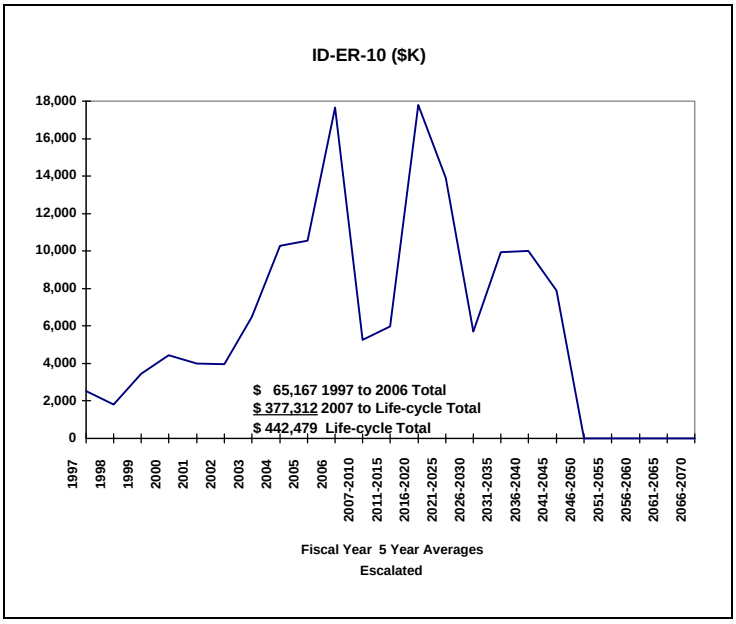

Figure 24. D&D Life-Cycle Cost

Major Milestones—

September 1997	CPP-631/709/734 complete field work
June 1998	ARA-I complete D&D field work
November 1998	ARA-III complete D&D field work
July 1999	Loss of Fluid Test Materials Test Area complete field work
September 1999	Test Area North 616 complete D&D field work
September 2008	Test Reactor Area 616 Engineering Test Reactor cleanup complete D&D field work

3.4.11 Mortgage Reduction Decontamination and Decommissioning (ID-ER-11)

Mission—The main focus of the INEEL Inactive Sites Department and the D&D Program is to decontaminate and dismantle the remaining reactors and their associated surplus facilities and structures, and to return the occupied sites to a releasable state for reuse. The mortgage reduction process is designed to expedite the schedule and reduce life-cycle costs.

Scope—All facilities awaiting D&D require surveillance and maintenance to maintain containment and alleviate the industrial hazards associated with degrading facilities/structures.

2006 End State—Completed Projects as of FY-2006:

- TRA-644, -655, -641, -643, -642, Electrical and Air Mods, -647, -648, -663, -752, -753 and Yard Ducting
- TAN-620, -656, -725, -726, -648, -647, -650, -681

Final End State—All D&D Mortgage Reduction Projects will be completed in 2014. Completion of D&D of TAN-607 is the final Mortgage Reduction Project and is to be completed in 2014.

Cost—The INEEL Inactive Sites Department utilizes detailed activity based cost estimates when a project is in the active planning and engineering phase. These detailed costs estimates are broken down into project specific quantities. Outyear D&D cost estimates are based upon the Environmental Management Integration Program Parametric Model developed in 1995. This model does not include waste disposal costs. The baseline costs represented here do not include contingency. Escalation is included from

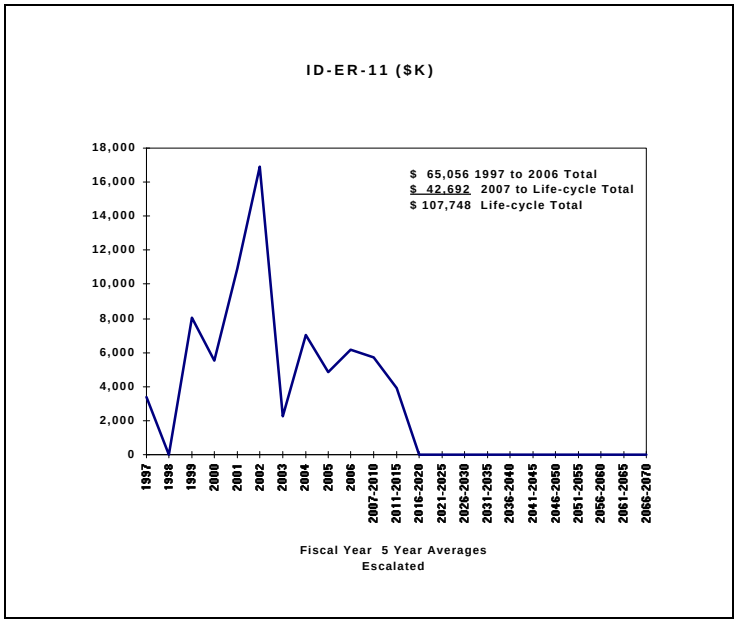

Figure 25. Mortgage Reduction Decontamination and Decommissioning Life-cycle Cost

FY-1999 out. Escalation rates used for FY-1999 through FY-2006 are 2.7 percent compounded. After FY-2006 the FY-2006 escalation rate is used. Figure 25 shows the life-cycle costs associated with the Mortgage Reduction D&D Environmental Restoration Projects.

Major Milestones—

September 2004	Completion of Test Reactor Area Mortgage Reduction Activities
September 2014	Completion of Test Area North Mortgage Reduction Activities

3.5 Spent Nuclear Fuel Projects

The site strategy for the management of spent nuclear fuel is to prepare all fuel for future transport out of the State of Idaho to a monitored, retrievable storage site or to permanent disposal in a geologic repository. The spent nuclear fuel will be consolidated into dry storage at the Idaho Chemical Processing Plant. Argonne National Laboratory-West has unique, state of the art facilities with remote handling capabilities and is currently developing technologies that could be applied to DOE-owned spent nuclear fuel needs. Figure 26 shows the life-cycle cost summary associated with the Spent Nuclear Fuel Projects.

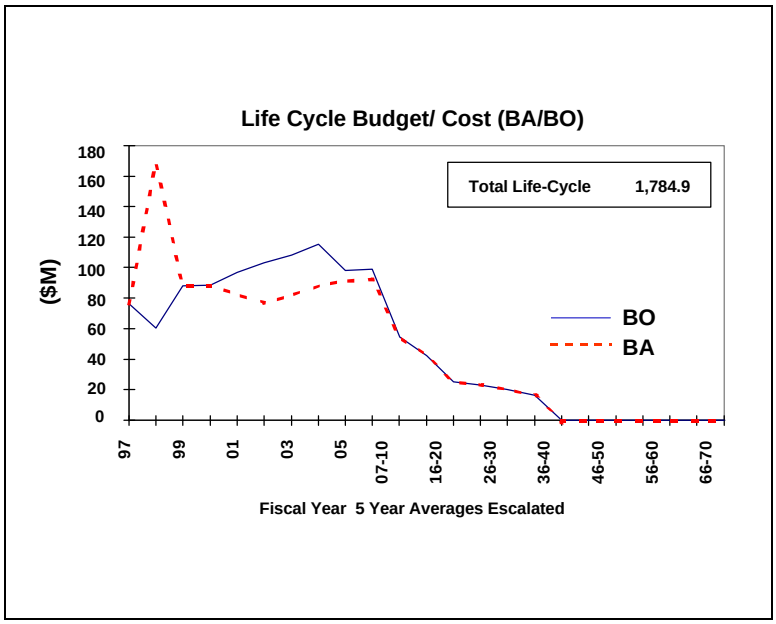

Figure 26. Spent Nuclear Fuel

3.5.1 National Spent Nuclear Fuel Program (ID-SNF-01)

Mission—One of DOE's missions is ensure the safe, reliable, and efficient management of DOE spent nuclear fuel and spent nuclear fuel returned to the United States from foreign research reactors, and to help in its preparation for final dispositioning. Safe, cost-effective management of DOE spent nuclear fuel is a challenge due to the number of sites involved and the extreme variety. The Idaho Settlement Agreement established the INEEL as Lead Laboratory to "…direct the research, development and testing of treatment, shipment and disposal technologies for all DOE spent fuel, and all such DOE activities shall be coordinated and integrated under the direction of the Manager, DOE-Idaho Operations Office." The purpose of the National Spent Nuclear Fuel Program is to facilitate implementation of the DOE mission, meeting DOE commitments to stakeholders, and assisting DOE Environmental Management sites in preparing their spent nuclear fuel for shipment to the repository. The National Spent Nuclear Fuel Program is a major influence

on the prioritization and implementation of DOE spent nuclear fuel activities at each site, and provides essential guidance to the sites which will enable the sites to prepare their spent nuclear fuel in a configuration which will be acceptable to the repository. This Program is chartered with the responsibility to ensure effective nation wide management of DOE spent nuclear fuel. This is accomplished by performing functions such as ensuring integration of spent nuclear fuel activities, to reduce redundancies and share technologies, and early resolution of complex-wide issues such as repository requirements. This program works closely with the Office of Civilian Radioactive Waste Management, which is the lead agency in dealing with the Nuclear Regulatory Commission for the dispositioning of DOE spent nuclear fuel in a repository. Recent congressional actions have provided substantial additional funding, thereby attesting to the importance of the program and recognizing the cost efficiencies attributable to it.

Scope—The National Spent Nuclear Fuel Program has the challenge to help ensure the safe, effective management of spent nuclear fuel generated from 55 DOE sites, universities, other domestic sites, and foreign research reactors. These activities will result in over 2900 shipments in preparation of movement to a geologic repository. Integrated management activities at the INEEL are aimed at achieving many objectives including:

- Resolving vulnerabilities at existing spent nuclear fuel storage facilities (by 2002) to ensure the facilities are safe for continued use,
- Transferring all spent nuclear fuel from underwater storage to more cost effective dry interim storage (by 2006), and
- Preparing DOE spent nuclear fuel for repository disposal.

2006 End State—The National Spent Nuclear Fuel Program's planning, integration, and coordination efforts will help the DOE achieve many of its objectives. The National Spent Nuclear Fuel Program will have developed a centralized inventory database; developed a standardized canister design; included DOE spent nuclear fuel in the Radioactive Waste License Application; provided spent nuclear fuel characterization guidance to the sites; and prioritized fuel transfers between sites. Also, depending upon the outcome of Argonne National Laboratory-West's demonstration phase of the electrometallurgical research program for treatment of sodium-bonded spent nuclear fuel which is scheduled for completion in June 1999, and if findings from the NEPA process determines the

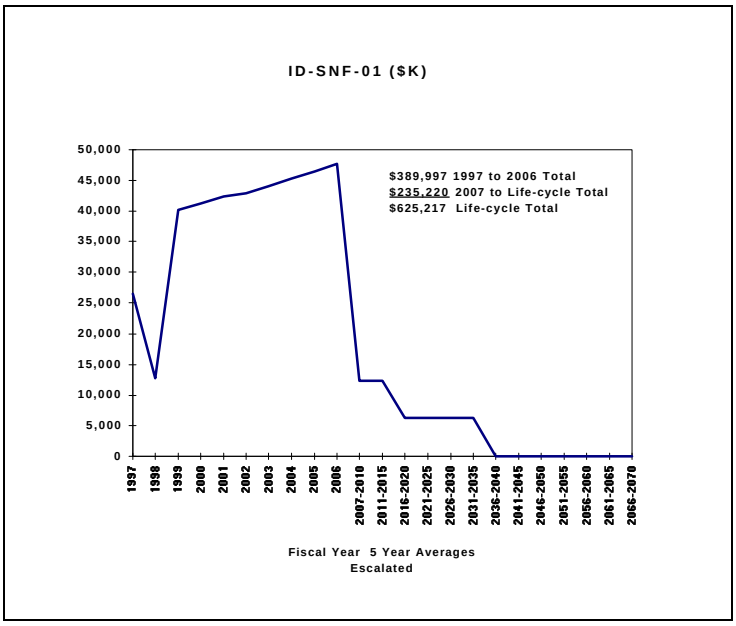

Figure 27. National Spent Nuclear Fuel Program Life-cycle Cost

need, the transport and treatment of sodium-bonded fuels may be occurring.

Final End State—It is assumed that the shipments of DOE spent nuclear fuel to the repository will begin in 2015 and continue through 2035. Storage facilities no longer needed for spent nuclear fuel management will be transitioned to deactivation or other uses. Spent nuclear fuel will continue to be generated, packaged, shipped, and disposed of from active sites. The National Spent Nuclear Fuel Program will be phased down when all repository requirements are established and most DOE spent nuclear fuel is shipped to the repository. Complete phase-out is currently planned to occur in 2035 when the majority of DOE spent nuclear fuel is transferred to the repository.

Cost—No contingency was included in developing these costs. In FY-1997, recognizing the need to ensure DOE spent nuclear fuel is included in the first repository, Congress appropriated an increase of $15 million for the National Spent Nuclear Fuel Program. Identification of this enhanced scope occurred after the 1998 funding request deadline, and therefore FY-1998 shows a decrease compared to the previous and later fiscal years. Efforts are underway to secure an additional Congressional increase in FY-1998 to supplement the current budget. Request for increased funding for the enhanced scope is made starting in FY-1999. Reduced funding needs could potentially begin in 2007 as repository requirements are finalized and implemented with further potential reductions beginning in FY-2016 as repository transfers are initiated. Figure 27 shows the life-cycle costs associated with the National Spent Nuclear Fuel Program.

Major Milestones—

September 1997	National Spent Nuclear Fuel Program accepts site Quality Assurance Programs, which demonstrates that DOE-Spent Nuclear Fuel will meet Repository Quality Assurance Requirements
September 1997	National Spent Nuclear Fuel Program , in conjunction with DOE sites, provide preliminary guidelines for qualifying DOE spent nuclear fuel for repository inclusion
September 2000	DOE-Owned spent nuclear fuel is included in the published Repository EIS & ROD
March 2002	National SNF Program will get DOE-Owned spent nuclear fuel into Final First License Application.
September 2002	National Spent Nuclear Fuel Program provide schedule of DOE Complex spent nuclear fuel movements to achieve DOE-spent nuclear fuel goal of all spent nuclear fuel in dry storage by 2006
September 2002	DOE completes vulnerability resolutions.
September 2006	DOE achieves objective of all DOE-spent nuclear fuel in dry storage
December 2015	National Spent Nuclear Fuel Program and DOE sites, complete guidelines to qualify DOE spent nuclear fuel for repository inclusion and begin shipping.

3.5.2 INEEL Spent Nuclear Fuel Programs (ID-SNF-02)

Mission—The purpose of the INEEL Spent Nuclear Fuel Program is to ensure safe and stable interim storage of spent nuclear fuel at DOE-ID managed facilities at the INEEL and the Fort St. Vrain storage facility in Colorado; and prepare and ship the spent nuclear fuel for final disposal in a repository by 2035; and ensure safety vulnerabilities identified by DOE Environmental Management Vulnerabilities Task Team and the Defense Nuclear Facilities Safety Board are being resolved.

This project baseline summary covers continuing fuel receipts, long-term surveillance and maintenance, program management and support, technology development, and preparation for disposal. The Idaho Settlement Agreement between the DOE, Navy, and State of Idaho requires the following: (1) removal of all spent nuclear fuel from Idaho by 2035 (comparable agreement requires removal of spent nuclear fuel from Fort St. Vrain in Colorado by 2035); (2) placing yearly restrictions on fuel receipts from foreign and domestic non-commercial reactors; (3) removal of all spent nuclear fuel from wet storage by 2023, and provide technical feasibility to State of Idaho by December 1999 to remove all spent nuclear fuel from wet storage by December 2023; and (4) issuing a ROD by April 30, 1999 to select a container system for management of spent nuclear fuel in a dry condition.

Scope—Specific work to be accomplished includes activities that fall under the following main categories: (1) facility surveillance, maintenance, and upgrades; (2) fuel monitoring activities; (3) the preparation, consolidation, and transfer spent nuclear fuel from numerous storage locations to dry storage; (4) resolution of identified vulnerabilities; (5) the continued safe receipts of spent nuclear fuels; (6) providing the required technical and administrative support; (7) program management and integration; (8) operation of the Ft. St. Vrain Independent Spent Fuel Storage Installation in Colorado; (9) technology development required for dry interim storage and preparation for off-site repository disposal; and (10) preparation of spent nuclear fuel for interim storage and repository disposal.

2006 End State—The end state vision in 2006 includes: (1) all spent nuclear fuel under the direction of this project will be in dry storage; (2) all DOE spent nuclear fuel at the INEEL will be consolidated to the Idaho Chemical Processing Plant; (3) the ROD will be complete for shipment and disposal of spent nuclear fuel out of the State of Idaho; and (4) spent nuclear fuel transfers to the new privatized dry transfer system and storage facility (provided by ID-SNF-05) will be underway.

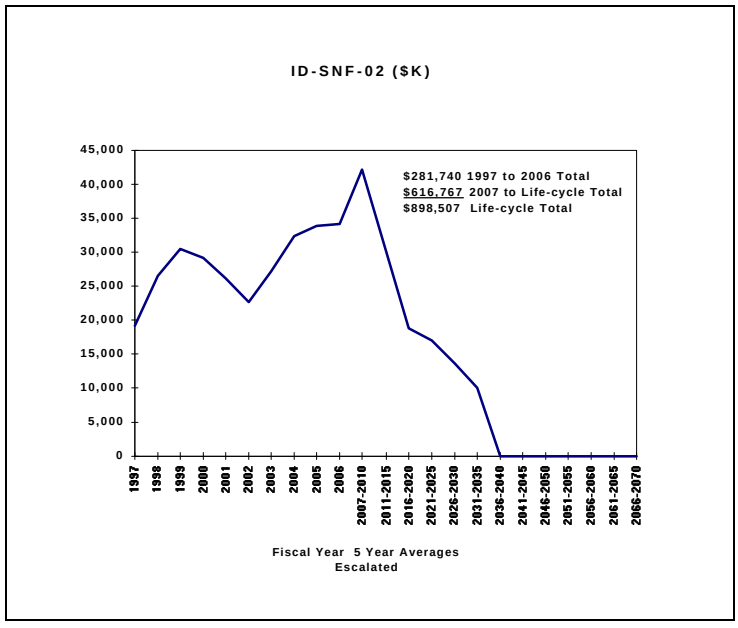

Figure 28. INEEL Spent Nuclear Fuel Program Life-cycle Cost

Final End State—Dry storage operations, receipt, shipment, and stabilization/packaging of assigned spent

nuclear fuels, fuel surveillance and maintenance, and essential support activities will continue until removal of the spent nuclear fuel to a long-term storage repository. These items included the continued operation of dry storage facilities, transfer of spent nuclear fuel from older dry storage facilities to new dry storage, receipt and storage of fuels, shipments of spent nuclear fuel to the repository, shipment of spent nuclear fuel requiring treatment to appropriate facilities, and stabilization/packaging activities in preparation for storage of spent nuclear fuel in the privatized dry storage facility.

Cost—The baseline costs provided contain no contingency. The cost estimates were originally developed as part of the Environmental Management Integration activity performed at the INEEL during February and March 1996. The subactivities identified in each project are required to meet the INEEL compliance baseline (e.g., as detailed in the Idaho Settlement Agreement for spent nuclear fuel). These activities have been costed through FY-2002. Out-year projected costs are an extension of the reduced costs and consolidation of spent nuclear fuel into less expensive dry storage and mortgage reduction activities planned and required for spent nuclear fuel. This has resulted in out-year costs at less than 1/3 of current year expenditures for the spent nuclear fuel program (unescalated dollars). Figure 28 shows the life-cycle costs associated with the INEEL Spent Nuclear Fuel Programs.

Major Milestones—

April 1999	Issue ROD on shipment and disposal of DOE spent nuclear fuel out of Idaho.
December 1999	Provide technical feasibility to State of Idaho to remove all spent nuclear fuel from wet storage.
December 2006	Complete transfers of all DOE-owned spent nuclear fuel out of wet storage.
September 2015	Begin shipping spent nuclear fuel at the INEEL to a national repository.
December 2034	Complete shipping all spent nuclear fuel at the INEEL to a repository.
December 2034	Complete shipping all Ft. St. Vrain spent nuclear fuel from state of Colorado to a national repository.

3.5.3 CPP-603 Spent Fuel Removal (ID-SNF-03)

Mission—The mission of this project is to remove all spent nuclear fuel from CPP-603 underwater basin storage, repackage spent nuclear fuel from those basins that is found to be in incompatible or compromised containers, and transfer the spent nuclear fuel to safer wet storage in CPP-666 or dry storage in the Irradiated Fuel Storage Facility at the Idaho Chemical Processing Plant. This is being accomplished to resolve fuel and facility vulnerabilities associated with degradation of fuel integrity and safety envelope concerns.

This project is being performed in accordance with the Idaho Court Order of December 1993, as incorporated in the Settlement Agreement between DOE, the Navy, and the State of Idaho, which requires all spent nuclear fuel in the wet storage basins of CPP-603 (Idaho Chemical Processing Plant's oldest basin storage facility) to be removed to safer wet storage or to dry storage by 2000.

Scope—Specific work to be accomplished under this project includes: (1) facility maintenance; (2) fuel monitoring activities; (3) preparations for transfer of the spent nuclear fuel; (4) repackaging spent nuclear fuel as necessary; and (5) spent nuclear fuel transfers. These activities are in direct support of the Idaho Settlement Agreement.

2006 End State—All spent nuclear fuel currently stored in the CPP-603 basins will be removed to safer wet storage or dry storage at Idaho Chemical Processing Plant by the end of FY-1998. This project will be completed at that time.

Final End State—Not applicable. This project completes in 1998.

Cost—The baseline costs provided contain no contingency. The cost estimates were originally developed, and scrubbed through a review board process, as part of the Environmental Management Integration activity performed at the INEEL during February and March 1996. The subactivities identified in this project are required to meet the INEEL compliance baseline (e.g., as detailed in the Idaho Settlement Agreement for spent nuclear fuel). Figure 29 shows the life-cycle costs associated with the Spent Nuclear Fuel Removal Project.

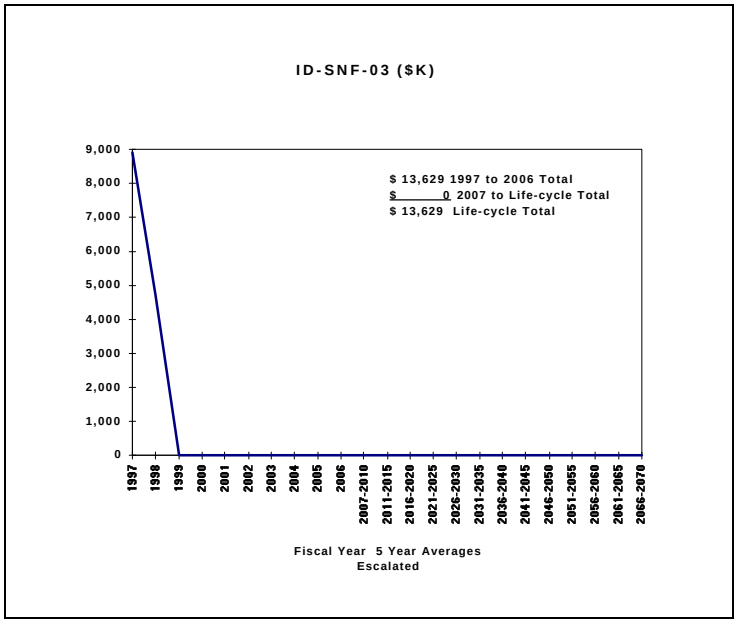

Figure 29. CPP-603 Spent Nuclear Fuel Removal Life-cycle Cost

Major Milestones—

September 1998	Complete removal of all spent nuclear fuel from underwater storage at CPP-603.

3.5.4 Test Area North Underwater Spent Fuel Removal (ID-SNF-04)

Mission—The purpose of this project is to remove spent nuclear fuel from the Test Area North pool and place it in modular dry storage in accordance with the Idaho Settlement Agreement. This project includes operation and maintenance of all Test Area North spent nuclear fuel storage, handling and support facilities (through 2001); completion of the Three Mile Island-2 Line Item Construction Project; and completion of the transfer of Three Mile Island-2 fuel, and all other fuel types to new storage at the Idaho Chemical Processing Plant. The Idaho Settlement Agreement requires completion of construction of the Three Mile Island-2 facility by December 31, 1998, commencement of fuel movements into the facility by March 31,

1999, and the completion of fuel movements into the facility by June 1, 2001. These transfers are required to reduce fuel and facility vulnerabilities identified in the *DOE Spent Nuclear Fuel Vulnerability Report*. This project eliminates the vulnerabilities of underwater storage at Test Area North and places the spent nuclear fuel in less vulnerable and more cost effective dry storage.

Scope—Specific work to be accomplished includes: (1) facility maintenance; (2) fuel monitoring activities; (3) completion of the Three Mile Island Line-Item Construction Projects at the Idaho Chemical Processing Plant; (4) preparations for transfer of the spent nuclear fuel; (5) repackaging and dewatering spent nuclear fuel as necessary; and (6) spent nuclear fuel transfers to the Idaho Chemical Processing Plant. These activities are in direct support of the Idaho Settlement Agreement.

2006 End State—All DOE-owned spent nuclear fuel under the direction of this project (underwater stored spent nuclear fuel) will be in dry storage at the INEEL by 2001 and this project will be terminated then. The cask storage pad and hot-shop operations will continue and are covered under the INEEL Spent Nuclear Fuel Programs Project.

Final End State—Not applicable. This project completes in 2001.

Cost—The baseline costs provided contain no contingency. The cost estimates were originally developed, and scrubbed through a review board process, as part of the Environmental Management Integration activity performed at the INEEL during February and March 1996. The sub-activities identified in this project are required to meet the INEEL compliance baseline (e.g., as detailed in the *Idaho Settlement Agreement for Spent Nuclear Fuel*). Figure 30 shows the life-cycle costs associated with the Test Area North Underwater Spent Nuclear Fuel Removal Project.

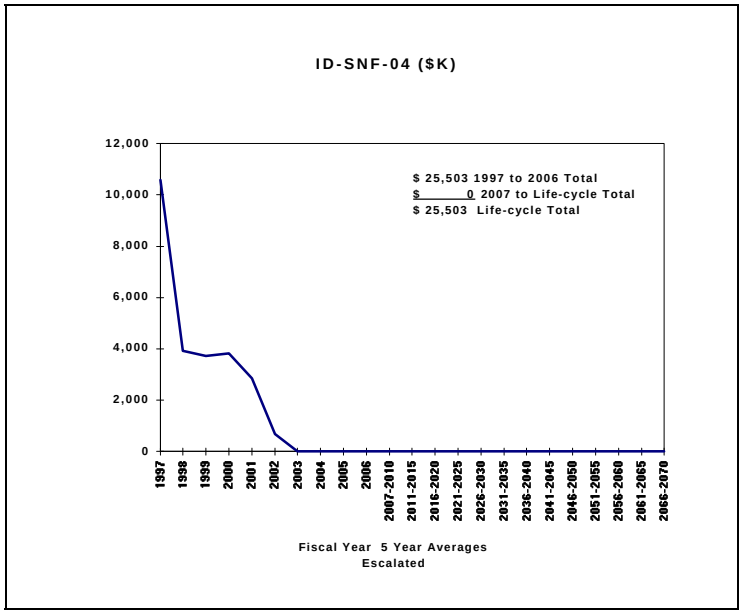

Figure 30. TAN Underwater Spent Nuclear Fuel Removal

Major Milestones—

December 1998	Complete Three Mile Island-2 facility construction
March 1999	Commence fuel movements into Three Mile Island-2 facility
June 2001	Complete transfer of Three Mile Island-2 fuel debris to dry storage.

3.5.5 Dry Transfer Station Construction and Phase I Operation (ID-SNF-05)

Mission—The purpose of this project is to provide a privatized project to construct and startup a spent nuclear fuel dry storage facility in accordance with the Idaho Settlement Agreement. The facility will ensure continued safe and stable receipt, transfer, and interim storage of INEEL assigned spent nuclear fuel until final shipment out of Idaho. This project will provide DOE with safe and efficient interim dry storage capabilities necessary to resolve issues and vulnerabilities with existing spent nuclear fuel storage at the INEEL by placing the fuels in new dry storage. The dry storage facility will eliminate the potential hazards associated with continued long-term wet storage of fuel and allow receipts to be directly placed in dry storage.

Scope—This project's work scope includes: (1) designing and constructing a dry transfer system, and (2) providing a Nuclear Regulatory Commission licensed Independent Spent Fuel Storage Installation for the interim storage of INEEL spent nuclear fuel. This includes spent nuclear fuel currently stored in existing INEEL storage facilities (except CPP-666) and off-site spent nuclear fuel assigned to the INEEL for interim storage. These activities are in direct support of the Idaho Settlement Agreement.

2006 End State—The dry transfer system and storage facility will have been constructed and Nuclear Regulatory Commission licensed. Initial operation of the facility will have begun in 2003.

Final End State—This project will end in 2006 although the privatized dry transfer system and storage facility will continue operation through 2035. Operating payments for these facilities to the privatizing entity are covered in the INEEL Spent Nuclear Fuel Programs Project, ID-SNF-02.

Cost—Based on cost estimate developed on Office of Environmental Management Privatization Project Fact Sheet. Figure 31 shows the life-cycle costs associated with the Dry Storage Project.

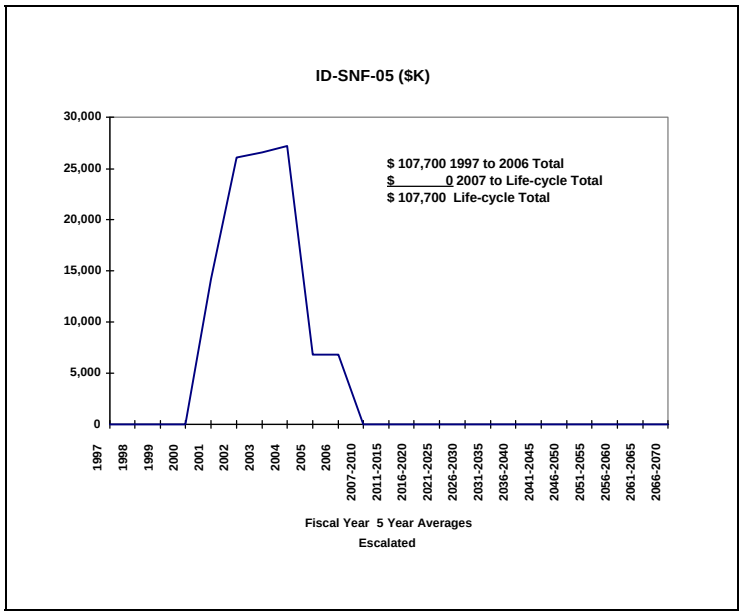

Figure 31. Dry Storage Project Life-cycle Cost

Major Milestones—

June 2000	Commence construction of dry storage facility
July 2003	Commence transfers to new dry storage facility.

3.5.6 Dry Storage of CPP-666 DOE Spent Fuel (ID-SNF-06)

Mission—The purpose of this project is to operate and maintain the CPP-666 fuel storage facility, and comply with the Idaho Settlement Agreement by preparing and transferring all DOE-owned spent nuclear fuel in the CPP-666 basins to dry storage by the end of 2006. This is being accomplished prior to the Idaho Settlement Agreement date of 2023 as a mortgage reduction initiative to save annual surveillance and maintenance costs of approximately $6 million per year. Dry storage of the fuels currently stored in basins at CPP-666 will ensure safe and stable interim storage of these spent nuclear fuels at the INEEL managed facilities until final shipment to a repository. Additionally, the Idaho Settlement Agreement mandates that all spent nuclear fuel at the INEEL be removed from the state by 2035. Until that time, spent nuclear fuel must be safely stored. The Idaho Settlement Agreement made provisions for the re-racking of CPP-666 to accommodate safe storage of spent nuclear fuel until it is placed in dry storage or removed from the state. To ensure safety, vulnerabilities identified by the DOE Vulnerability Report and the Defense Nuclear Facilities Safety Board 94-1, must be resolved.

Scope—Specific work to be accomplished includes: CPP-666 fuel storage operations and maintenance; CPP-666 upgrades; CPP-666 rack replacements; installation of dual purpose canister handling capabilities into CPP-666 and procurement of dry storage canisters and storage modules; removal of all DOE-owned spent nuclear fuel from the facility and placement into dry storage by the end of 2006; continued receipt and storage of assigned spent nuclear fuel, and return of Naval fuel through 2006.

2006 End StateAll DOE-owned spent nuclear fuel will be removed to dry storage by the end of 2006.

Final End State—This project will complete in 2006 with the removal of all DOE-owned fuel from CPP-666. However, Naval spent nuclear fuel will remain in CPP-666 through approximately 2011. The costs associated with the storage of Naval spent nuclear fuel from 2007 through 2011 are covered in ID-SNF-02.

Cost—The baseline costs contain no contingency. The cost estimates were originally developed as part of the Environmental Management Integration activity performed at the INEEL during February and March 1996. The sub-activities identified in each project are required to meet the INEEL compliance baseline (e.g., as detailed in the *Idaho Settlement Agreement for Spent Nuclear Fuel*). Figure 32 shows the life-cycle costs associated with the Dry Storage of CPP-666 DOE-owned Spent Nuclear Fuel Project.

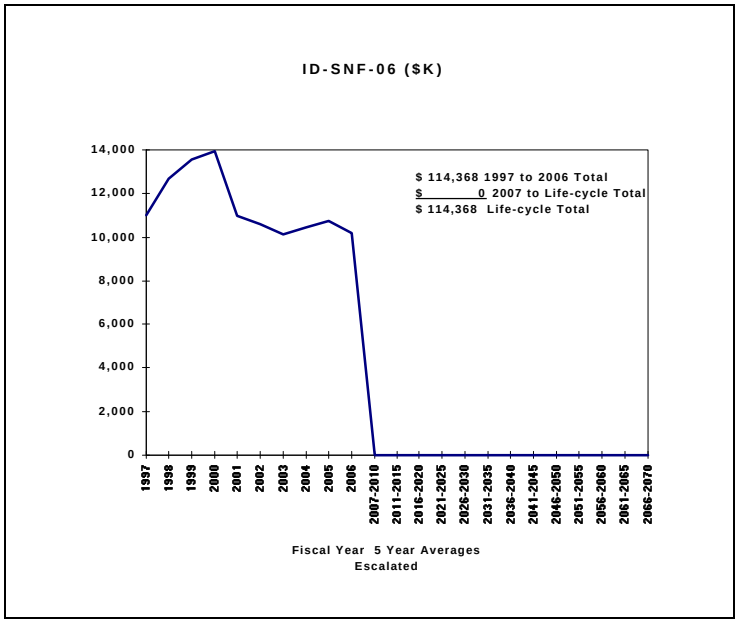

Figure 32. Dry Storage of CPP-666 DOE-owned Spent Nuclear Fuel Life-cycle Cost

Major Milestones—

April 2000	Complete installation of dual purpose canister loading capabilities in CPP-666
September 2006	Complete transfer of all DOE-owned spent nuclear fuel at the INEEL from wet to dry storage.

3.6 Low-level, Mixed Low-level, and Transuranic Waste Stream Projects

Low-level, mixed low-level, and transuranic waste stream projects manage transuranic, low-level mixed, low-level, hazardous, sanitary, and special case waste. These projects manage waste generated by environmental restoration and facility stabilization activities, as well as that from non-Waste Management programs, such as the DOE Office of Nuclear Energy and the Naval Nuclear Propulsion Program. Activities also include managing waste that originates at other DOE sites. Each waste type requires a different management strategy because each has specific technical requirements for treatment, storage, and disposal. The management strategy for each waste type also depends on the consent orders and compliance agreements the DOE has entered into with the State of Idaho and the EPA.

The INEEL is currently planning a pilot internal chargeback system for both Environmental Management and non Environmental Management internal customers, for newly generated low-level wastes. This will be developed in line with the DOE-HQ Reengineering Initiative, and piloted in 1998 using mock billing for waste generators. Full scale implementation will be dependent upon the success and realized benefits from the pilot, and direction from Office of Management and Budget and DOE-HQ.

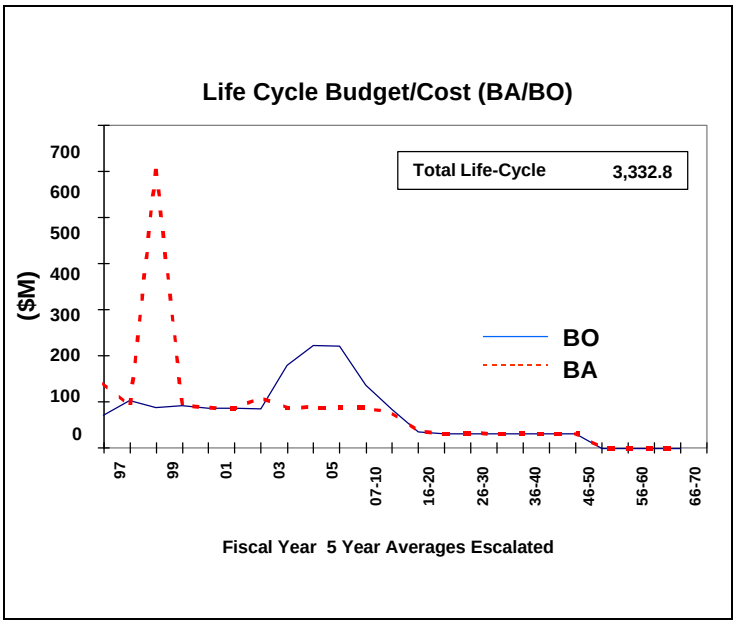

Figure 33. Waste Management Summary Life-cycle Costs

For the purpose of the Discussion Draft, high-level waste is being discussed separately. Figure 33 shows the life-cycle costs for the Waste Management Projects.

3.6.1 Low-level Waste Contact Handled On-site Disposal Project (ID-WM-01)

Mission—The purpose of this project is to dispose of contact handled low-level radioactive waste on the INEEL from FY-1997 through FY-2006. In this time frame this project will dispose of backlog and newly

generated low-level waste. Volume reduction and disposal of low-level waste reduce human and environmental risk by eliminating the accumulation of low-level waste at various locations across the INEEL. Consolidated disposal in the Radioactive Waste Management Complex subsurface disposal area provides a single location where risks associated with radionuclide migration can be controlled and monitored.

Scope—Waste Experimental Reduction Facility low-level waste volume reduction operations will be shut down in 2003 and transferred to the private sector beginning in 2004. The active Radioactive Waste Management Complex subsurface disposal area contact handled low-level waste disposal pit is predicted to be full by 2006 and will undergo CERCLA closure. However, a final decision to cease contact handled low-level waste disposal operations at the Radioactive Waste Management Complex will be based on the resolution of technical, economic, and political issues regarding the continued operation of the Radioactive Waste Management Complex as well as securing off-site disposal facilities that meet applicable requirements.

The focus of this project is to conduct activities associated with volume reduction through 2003 and disposal of INEEL generated low-level waste through 2006. Projected contact handled INEEL low-level waste generation rates are 3,224 cubic meters per year. This is broken down by process type as follows: 1416 cubic meters incinerable, 935 cubic meters compactable, 538 cubic meters of sizable, and 335 cubic meters of direct disposal. Waste Experimental Reduction Facility processing rates are projected to be 708 cubic meters incinerable, 1,275 cubic meters compactable, 1,530 cubic meters of sizable. Approximately 1,745 cubic meters of contact handled low-level waste is projected to be disposed at the Radioactive Waste Management Complex subsurface disposal area per year. These activities are all included in the Regulatory Compliance Baseline.

2006 End State—Disposal of contact handled low-level waste at the Radioactive Waste Management Complex is ultimately limited by the physical capacity of that facility. This capacity is also potentially limited by the total amount of radioactivity disposed of at the facility in accordance with ongoing performance evaluations, in light of the continuing need for disposal of INEEL low-level waste beyond FY-2006, DOE is reviewing technical, economical, and other issues surrounding continued disposal at the Radioactive Waste Management Complex or elsewhere at the INEEL as well as investigating alternative disposal sites that meet applicable regulations. Any such reviews and subsequent planning will be coordinated with waste generators who currently rely on waste disposal at the Radioactive Waste Management Complex, to ensure their needs are supported.

Final End State—Low-level waste generation will continue for the life of the INEEL. Generation rates are projected to remain at the 2006 level with minor variations as INEEL facilities shutdown. D&D generation will depend on funding availability and priorities. Low-level waste volume reduction and disposal operations after 2006 will use commercial or other DOE facilities.

Cost—Detailed cost estimating was used and estimates are for specific activities that must be performed to accomplish the project activities in full compliance with the regulatory compliance baseline. The activities and costs were verified by a senior internal review board and rolled into a resource-loaded

schedule that reflects current baseline compliance operations. Waste Operations is now in the process of projectizing activities to obtain further efficiencies. In completing the compliance baseline, an integral component of the projectization will to be to perform a critical analysis of our estimate by an independent review team.. The costs identified in this project baseline summary contain a pro rata share of the apportioned support activities which are on-going, cross-cutting business management functional support and services for the Waste Management Program. These tasks are apportioned to each Waste Management Program Baseline Summary in accordance with the budget of each Project Baseline Summary. These apportioned support activities provide for the business management and environmental, safety, and health coordinating needs of the Waste Management Program. Figure 34 shows life-cycle costs for the Low-level Waste Contact Handled On-site Disposal Project.

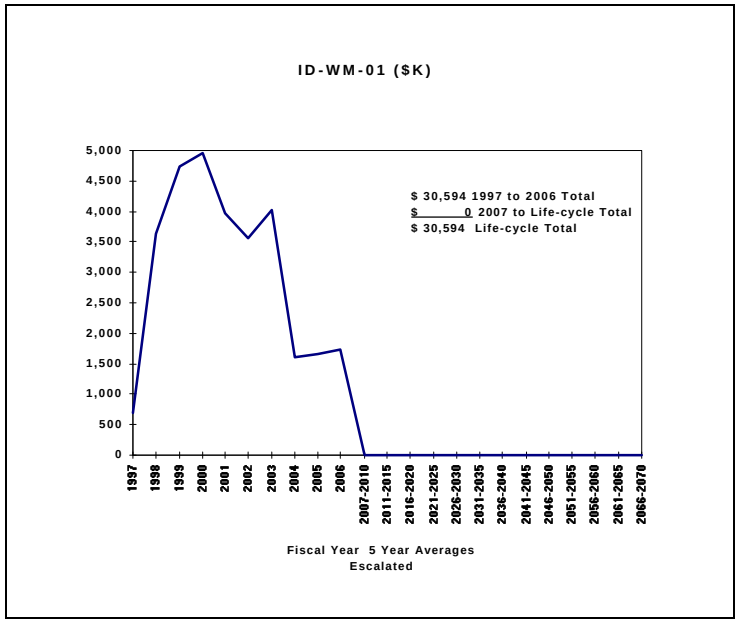

Figure 34. Contact Handled On-site Disposal Life-cycle Cost

Major Milestones—

January 1998	Submit Composite Analysis Report to DOE-HQ
September 1998	Complete Implementation of procedures for low-level waste storage at the INEEL
September 1998	Submit Annual Report to HQ on Summary of Waste Disposal Operations and Performance Assessment adequacy
December 1998	Complete low-level waste inventory tracking system
September 1999	Complete volume reduction of the low-level waste backlog
September 2001	Complete Testing at Engineered Barrier Test Facility
September 2002	Complete Final Closure Plan for active Low-level Waste Disposal Facility
September 2003	Update PA prior to closure of contact handled low-level waste activities
September 2006	Shutdown operations of the Radioactive Waste Management Complex subsurface disposal area

3.6.2 Low-level Waste Contact Handled Off-site Treatment/Disposal Project (ID-WM-02)

Mission—The remaining active INEEL Radioactive Waste Management Complex Subsurface Disposal Area Low-level Waste disposal pit will be filled at some time in the future. If it is decided to cease disposal

of low-level waste at the Radioactive Waste Management Complex, compliance with DOE Orders and RCRA/CERCLA requires closure and remedial actions. Disposal capability is required for many of the long-term programs. The ability to dispose of low-level waste should be maintained with a minimum of disruption to the operating facilities and programs. However, the disposal capacity is not required to be on the INEEL.

Shutdown of onsite disposal capability would require storage of low-level waste until offsite disposal becomes available. It is anticipated that the disposal of contact-handled low-level waste can be accomplished after being designated as a generator to an offsite DOE facility and could be accomplished within one year. The disposal of remote-handled wastes, however, poses many technical issues in that significant actions by the Naval Reactors Facility, Idaho Chemical Processing Plant, Argonne National Laboratory-West, and/or the Advanced Test Reactor may be required to safely handle radioactive wastes in a manner consistent with the required shipping casks and criteria. These actions may require approximately seven to ten years to accomplish due to the capital construction involved and are not included in the scope of this Project Baseline Summary. Since offsite capacity does not now exist, and since significant time and funding may be required to establish this capability for both contact-handled and remote handled wastes, this Project Baseline Summary develops offsite alternatives for low-level waste disposal, establishes contracts or agreements with disposal facilities, and establishes offsite contact handled low-level waste disposal capabilities as mutually agreed among the involved DOE elements.

Treating low-level waste converts the waste into a more stable form for disposal and minimizes void spaces and future subsidence problems. Treating low-level waste also extends the useful life of the Radioactive Waste Management Complex Low-level Waste disposal facility and reduces packaging and transport costs to an offsite disposal facility. There is currently a significant and increasing low-level waste backlog stored at various INEEL facilities. The I*NEEL Waste Management Strategic Plan* (DOE/ID-10429, Revision 2, Draft, June 1996) and the *Low-level Waste Value Engineering Report* (MCT-132-96, December 19, 1996) contemplate the disposition of INEEL's low-level waste backlog by the end of FY-1999. In order to fulfill this requirement, use of offsite commercial low-level waste treatment, to supplement Waste Experimental Reduction Facility low-level waste treatment, is attractive. It is planned that Waste Experimental Reduction Facility low-level waste treatment operations will cease at the end of FY-2003 and all INEEL low-level waste treatment will be performed at a commercial facility from FY-2004 through the end of operations at the INEEL. LMITCO currently has an offsite commercial subcontract in place with Scientific Ecology Group located in Oak Ridge, Tennessee. The subcontract includes transportation, incineration, compaction, metal melt, and solidification services.

Scope—This project baseline summary develops offsite disposal capability by (a) developing an INEEL waste certification program, (b) developing waste profiles and characterization methodology for each contact handled and remote handled waste stream, (c) preparing documentation for shipment of contact handled low-level waste to the selected offsite disposal facility, (d) training of each facility to the selected offsite disposal facility's waste acceptance criteria, and (e) conducting a NEPA review of the proposed action to include transportation of wastes over the highway and shutdown of the contact handled low-level waste disposal operations at the Radioactive Waste Management Complex. A program to ship all INEEL generated contact handled low-level waste and remote handled-low-level waste to the selected offsite

disposal facility is being developed to support waste disposal, if appropriate, by as early as the end of FY-2006. Beginning in FY-2007, approximately 1,745 cubic meters of contact handled low-level waste will require disposal per year, and this outyear disposal is covered in the Long-Term Treatment, Storage and Disposal Operations Project.

Offsite treatment capability will be maintained by renewing and maintaining an offsite low-level waste treatment subcontract. The current subcontract expires July 31, 1998. It will be necessary to extend that subcontract or to prepare and issue a competitive request for proposal. Additionally, this project baseline summary maintains offsite treatment capabilities by coordinating and managing the transportation and treatment of 1,530 cubic meters of incinerable low-level waste at an offsite treatment facility in FY-1999, and annually, between FY-2004 and FY-2006, coordinating and managing the transportation and treatment of 1,416 cubic meters of incinerable low-level waste, 538 cubic meters of sizable low-level waste, and 935 cubic meters of compactable low-level waste at an offsite treatment facility.

2006 End State—The selected offsite disposal facility approved Waste Certification Programs and Waste Stream profiles will be in place by end of FY-2004 for disposal of offsite contact handled low-level waste and remote handled low-level waste. The capability to dispose of contact handled waste at the selected offsite disposal facility will be developed, if appropriate, by FY-2006 under ID-WM-01. Preparations for remote handled waste disposal will be in place. Remote handled low-level waste will likely continue to be disposed at the Radioactive Waste Management Complex through FY-2006 under ID-WM-03. It is anticipated that remote handled low-level waste disposal operations at the Radioactive Waste Management Complex will likely continue until an acceptable off-site disposal location is operating, the associated transportation issues are resolved, and such off-site disposal is to be determined to be in DOE's interest. After 2006, offsite disposal of contact handled and remote handled low-level waste will be under ID-WM-11. A subcontracting mechanism for the transportation and offsite treatment of INEEL low-level waste will be in place. Offsite treatment of contact handled low-level waste (previously performed at the Waste Experimental Reduction Facility) begins in 2004.

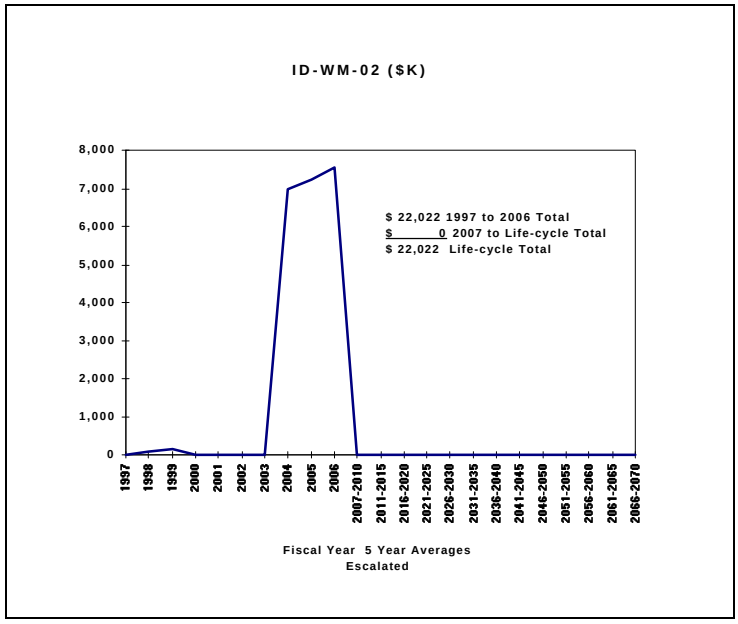

Figure 35. Contact Handled Off-site Disposal Life-cycle Cost

Final End State—This project may terminate as early as the end of FY-2006. Offsite low-level waste treatment and disposal activities for the newly-generated waste will continue under the Long-Term Treatment, Storage and Disposal Operations (ID-WM-11). The long-term offsite treatment and disposal operation project begins in 2007.

Cost—Detailed cost estimating was

used and estimates are for specific activities that must be performed to accomplish the project activities in full compliance with the regulatory compliance baseline. Waste Operations is now in the process of projectizing activities to obtain further efficiencies. The costs identified in this project baseline summary contain a pro rata share of the Apportioned Support activities which are on-going, cross-cutting business management functional support and services for the Waste Management Program. These tasks are apportioned to each Waste Management Program Baseline Summary in accordance with the budget of each Project Baseline Summary. These apportioned support activities provide for the business management and environmental, safety, and health coordinating needs of the Waste Management Program. Figure 35 shows life-cycle costs for the Low-level Waste Contact Handled Off-site Disposal Project.

Major Milestones—

August 1998	Renew offsite low-level waste treatment subcontract
September 1999	Treat 1,530 cu. meters of low-level waste offsite
September 2004	Develop Waste Certification program and Waste Profiles
October 2004	Initiate long-term low-level waste treatment activities
September 2005	Commence shipment of contact handled low-level waste offsite

3.6.3 Low-level Waste Remote Handling Disposal Project (ID-WM-03)

Mission—The purpose of this project is to dispose of remote handled low-level waste at the INEEL. For over forty years the INEEL has been supporting the DOE in energy research that has routinely generated low-level waste. The INEEL manages this waste at the Radioactive Waste Management Complex by direct disposal in cement lined vaults. Approximately 31 cubic meters of remote handled low-level waste is generated and disposed of per year in these vaults.

Scope—Remote handled low-level waste generation and disposal rates are approximately 31 cubic meters per year at the INEEL. Disposal operations will likely continue beyond 2006 until an acceptable off-site disposal location is operational and any associated transportation issues are resolved. Support activities include preparation, validation, and maintenance of the Radioactive Waste Management Complex Low-level Waste Performance Assessment; and conducting activities identified in the *Department of Energy Implementation Plan for the Defense Nuclear Facilities Safety Board Recommendation 94-2* (INEEL-96/0261A).

2006 End State—It is likely that remote handled low-level waste disposal operations will continue past FY-2006 at the Radioactive Waste Management Complex.

Final End State—Current activities and future generation of low-level waste at the INEEL is expected to continue through 2050. Generation rates are projected to remain at the 2006 level with minor variations as facilities shutdown and start up. D&D generation will depend on funding availability and priorities. Low-level waste disposal operations after 2006 may use commercial or other DOE facilities in addition to the INEEL.

Cost—Detailed cost estimating was used and estimates are for specific activities that must be performed to accomplish the project activities in full compliance with the regulatory compliance baseline. Waste Operations is now in the process of projectizing activities to obtain further efficiencies. The costs identified in this project baseline summary contain a pro rata share of the Apportioned Support activities which are on-going, cross-cutting business management functional support and services for the Waste Management Program. These tasks are apportioned to each Waste Management Program Baseline Summary in accordance with the budget of each Project Baseline Summary. These apportioned support activities provide for the business management and environmental, safety, and health coordinating needs of the Waste Management Program. Figure 36 shows life-cycle costs for the Low-level Waste Remote Handled On-site Disposal Project.

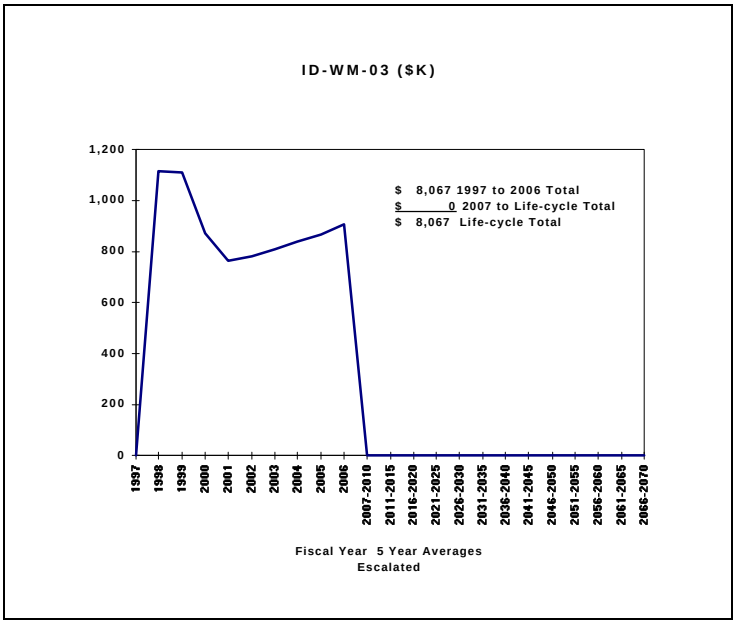

Figure 36. Remote Handled Disposal Life-cycle Cost

Major Milestones—

January 1998	Submit Composite Analysis Report to DOE-HQ
September 1998	Complete Implementation of procedures for low-level waste storage at the INEEL
September 1998	Submit Annual Report to HQ on Summary of Waste Disposal Operations and Performance Assessment adequacy
December 1998	Complete low-level waste inventory tracking system
September 2002	Complete Final Closure Plan for active Low-level Waste Disposal Facility
September 2003	Update PA prior to closure of contact handled low-level waste activities
September 2006	Proposed shutdown operations of the Radioactive Waste Management Complex Subsurface Disposal Area

3.6.4 Special Case Waste (ID-WM-04)

Mission—Special case wastes are radioactive wastes that do not fit into current DOE management plans, or that have limited or no planned disposal alternatives. Disposition of special case waste is required to allow decommissioning of INEEL nuclear facilities and to eliminate potential safety incidents inherent with mismanagement of highly radioactive waste. The purpose of this project is to inventory, characterize, and manage special case waste emphasizing efficient dispositioning to reduce overall management costs and increase worker and environmental safety. Special case waste is divided into six subcategories, each with separate management issues to be addressed.

This project is interrelated with the national special case waste management project under the DOE Low-Level Waste Center of Excellence and requires a deep geological repository such as the one being constructed for spent nuclear fuel. Although the Project Baseline Summary Guidance suggests that only two special case waste subcategories be addressed under special case waste, the INEEL manages special case waste as a project. As a result, the INEEL special case waste covered by this project differs from the guidance definition as described in the technical approach and related sections. Three of the six subcategories of special case waste are managed through this project (Special Performance Assessment Required Low-level Waste, Site-Specific Disposal Problem Low-level Waste, and uncharacterized special case waste). The other three subcategories (non-certifiable defense transuranic waste, non-defense transuranic waste, and fuel/fuel debris) are managed under separate projects and are mentioned here for completeness only.

Scope—The scope of this project is to manage the special case waste including identifying the current and projected inventory of this waste, and characterizing the waste as needed. This scope includes ensuring efficient dispositioning of INEEL special case waste to reduce overall management costs to DOE. To reach this overall objective, the special case waste project will: (1) characterize potential special case waste; (2) move and consolidate the special case waste into long-term storage that is safe, compliant, and minimizes costs; (3) make maximum use of existing projects to manage special case wastes that are of the same waste type; (4) coordinate disposal of special case waste with similar waste types; and (5) encourage existing projects to develop strategies that remove waste from the special case waste category.

2006 End State—In the year 2006, the majority of special performance assessment required special case waste sealed sources will have been transferred to consolidated onsite storage and/or recycled offsite. For site-specific disposal problem special case waste, characterization will be complete and the requirements for shipping and disposal will be identified. Only a portion of the reactor component special performance assessment required special case waste to be transferred to interim dry storage by FY-2006. Most existing reactor component special performance assessment required special case waste is stored underwater in pools or canals and must be removed from these facilities before fuel storage pools/canals can be drained and facility D&D completed. The Power Burst Facility canal and Test Area North pool will be drained in 2005 and 2006, respectively. By 2006, the special performance assessment required special case waste removed from these facilities will be processed to separate the portion of waste that truly qualifies as

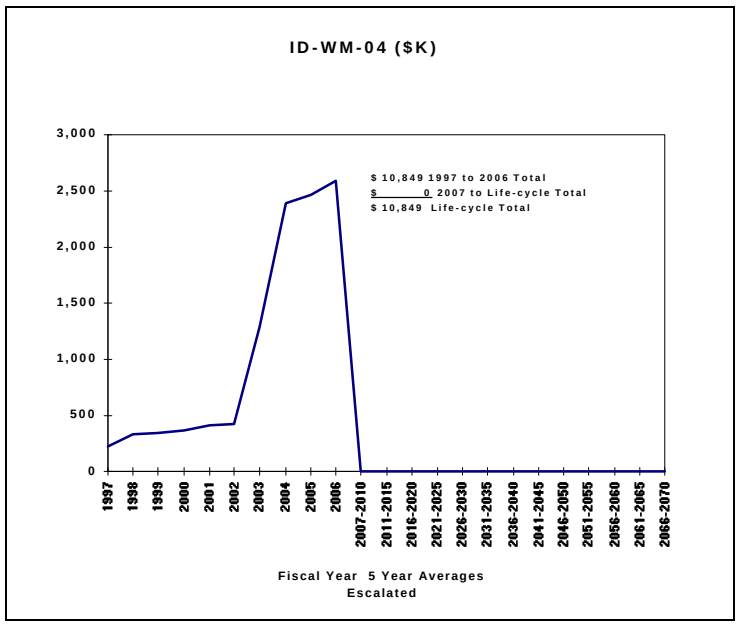

Figure 37. Special Case Waste Life-cycle Cost

special performance assessment required special case waste, volume reduced, packed at maximum volume efficiency into containers, and placed in interim dry storage. Interim dry storage configuration options and locations evaluation will be complete. Characterization of existing uncharacterized special case waste will be complete and this waste will be managed with the appropriate waste type.

Final End State—After 2006, this project ends and the remaining work scope transfers to the Long-Term Treatment, Storage, and Disposal Operations Project.

Cost—The costs for this project are based upon activities required to carry out the technical approach described above. The costs identified in this project baseline summary contain a pro rata share of the Apportioned Support activities which are ongoing, cross-cutting business management functional support and services for the Waste Management Program. Figure 37 shows life-cycle costs for the Special Case Waste Project.

Major Milestones—

June 1998	INEEL excess sealed source management program operational
September 1998	Future INEEL reactor component special performance assessment required special case waste generation estimated
September 2006	Special performance assessment required special case waste removed from Power Burst Facility Canal and Test Area North Pool, processed, and packaged for interim dry storage

3.6.5 Mixed Low-level Waste Treatment Project (ID-WM-05)

Mission—The purpose of this project is the compliant treatment, storage, and disposal of mixed waste at the INEEL in accordance with the site treatment plan milestones. This includes the reduction or elimination of mixed waste streams at the INEEL and other DOE sites until FY-2003, when the privatized Advanced Mixed Waste Treatment Project begins treatment operations. The principal waste treatment at the INEEL is incineration at the Waste Experimental Reduction Facility. This project baseline summary includes all Waste Experimental Reduction Facility volume reduction activities for mixed low-level waste and low-level waste.

Scope—The INEEL will focus on leveraging the excess capacity at the Waste Experimental Reduction Facility incinerator to treat six to eight burn campaigns per year of DOE complex mixed waste in accordance with the INEEL Site Treatment Plan. Compliance with the Site Treatment Plan and RCRA will require operation of several mixed low-level waste treatments and maintaining the operation of hazardous and mixed low-level waste storage facilities, along with construction and operation of several new skid-mounted type treatment processes.

One existing commercial treatment/disposal and one DOE Oak Ridge treatment facility will be used to support compliance with the Site Treatment Plan. Three existing Waste Reduction Operations Complex facilities and two existing Idaho Chemical Processing Plant facilities will store hazardous and mixed low-level waste awaiting treatment and disposal.

2006 End State—The backlog volume reduction of low-level waste will be treated by 1999. The backlog of mixed low-level waste associated with this project baseline summary will be treated by 2003. Waste Reduction Operations Complex mixed low-level and low-level waste treatment processes will be shut down in 2003. RCRA closure of the Waste Experimental Reduction Facility, the Repackaging Booth, and two hazardous and mixed low-level waste storage facilities will be performed from 2004 through 2005.

Final End State—Operation of the remaining hazardous and mixed low-level waste storage facilities and treatment of newly generated mixed low-level waste by a commercial facility will be transferred to the Long-Term Treatment, Storage and Disposal Operations Project Baseline Summary (ID-WM-11) beginning in 2007. Low-level waste volume reduction for newly generated waste will be transferred to the Low-level Waste Contact-handled Offsite Treatment/Disposal Project Baseline Summary (ID-WM-02) beginning in 2004. Implementation of the INEEL Site Treatment Plan Consent Order administrative requirements will continue for newly generated mixed low-level waste and for legacy and newly generated transuranic and high-level waste, and will be transferred to Long-Term Treatment, Storage and Disposal Operations Project Baseline Summary (ID-WM-11) beginning in 2007.

Cost—Detailed cost estimating was used and estimates are for specific activities that must be performed to accomplish the project activities in full compliance with the regulatory compliance baseline. Waste Operations is now in the process of projectizing activities to obtain further efficiencies. The costs identified contain a pro rata share of the Apportioned Support activities which are on-going, cross-cutting business management functional support and services. These tasks are apportioned in accordance with the budget of each project baseline summary. These apportioned support activities provide for the business management and environmental, safety, and health coordinating needs of the Waste Management Program. Figure 38 shows life-cycle costs for the Mixed Low-level Waste Treatment Project.

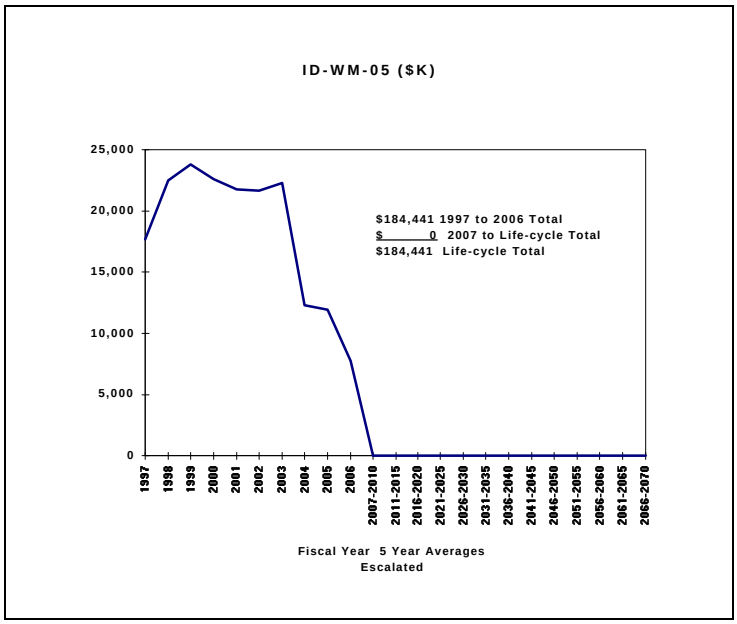

Figure 38. Mixed Low-level Waste Treatment Life-cycle Cost

Major Milestones—

March 1997	Incineration—Backlog Schedule
March 1997	Repackaging Booth—Commence System Testing
April 1997	Complete RCRA Trial Burn—Waste Experimental Reduction Facility Incinerator
June 1997	Repackaging Booth—Commence Operations
June 1997	Macro encapsulation—Initiate Construction

September 1997	Sizing/Opening/Segregation—Initiate Construction
November 1997	Update INEEL Site Treatment Plan/INEEL Site Treatment Plan Report
December 1997	Macro encapsulation—Commence System Testing
December 1997	HG Retort—Procure Contracts
March 1998	Repackaging Booth—Backlog Schedule
March 1998	Stabilization—Backlog Schedule
March 1998	Sizing/Opening/Segregation—Commence System Testing
March 1998	Cask Dismantlement—25 percent Backlog Complete
June 1998	HG Retort—Submit RCRA Permit
June 1998	Macro encapsulation—Commence Operations
September 1998	Sizing/Opening/Segregation—Commence Operations
December 1998	Macro encapsulation—Backlog Schedule
December 1998	HG Retort—Initiate Construction
March 1999	Cask Dismantlement—50 percent Backlog Complete
September 1999	HG Retort—Commence System Testing
September 1999	Cask Dismantlement—75 percent Backlog Complete
September 1999	Sizing/Opening/Segregation—Backlog Schedule
September 2000	HG Retort—Commence Operations
June 2000	HG Retort—Backlog Schedule
September 2001	Cask Dismantlement—100 percent Backlog Complete
September 2005	Suspend Operations of Waste Experimental Reduction Facility

3.6.6 National Low Level Waste Program (ID-WM-06)

Mission—Section 7 of the Low-Level Radioactive Waste Policy Amendments Act of 1985 (Public Law 99-240) requires that DOE provide technical assistance to requesting states and compact regions responsible for managing commercial low-level radioactive waste as deemed necessary by the Secretary of Energy. The Act also requires that the DOE dispose of commercially generated Greater-than-Class C low-level radioactive waste. The purpose of the National Low-Level Waste Management Program is to assist DOE in fulfilling its responsibilities under the Act.

While the DOE is responsible for providing technical assistance to states to manage commercial low-level radioactive waste, the Act clearly states that the management and disposal of commercially generated low-level radioactive waste is the responsibility of the states. States have substantial flexibility and authority to implement their responsibilities for disposal of low-level radioactive waste in a variety of ways

consistent with their particular goals and objectives. The DOE continues to support states in their efforts to establish needed disposal capacity. However, the DOE has no authority over the schedule, decisions, or efforts of states to manage their low-level waste. Because technical assistance is provided under Public Law 99-240 as deemed necessary by the Secretary of Energy and because the DOE will have provided technical assistance to states for more than 20 years in FY-2006, the DOE assumes that states will have new disposal capacity or that the assistance needed will be fully funded by states and compacts after FY-2006.

Scope—The work scope objectives of the National Low-Level Waste Management Program enable the DOE to meet its responsibility under Public Law 99-240 by (1) providing technical assistance to requesting states; (2) acting as a communication nexus for the exchange of timely information and technology between states and Federal agencies; (3) maintaining a national perspective of state efforts to manage commercially generated low-level waste; and (4) acting as a coordinator to help DOE develop plans for acceptance of commercially generated Greater-than-Class C waste. Because the program is created to assist states and not DOE in their efforts to manage commercially generated low-level radioactive waste, there are no objectives related to the overall INEEL regulatory compliance baseline.

2006 End State—The program will be fully user-funded at the end of FY-2006. The DOE will have implemented a program leading to the disposal of the Greater Than Class C waste and will no longer require support.

Final End State—No scope anticipated. DOE project funding completed end of FY-2006.

Cost—There are no non-Environmental Management costs for this program, nor are there any regulatory compliance baseline costs associated with this program. However, a reduction in funding will provide less technical assistance for states. Many states are operating with limited funds and rely heavily on the assistance provided by the National Program. With reduced technical assistance, states may curtail their siting efforts further, and some may stop siting and ask the DOE to accept their low-level radioactive waste for disposal. Figure 39 shows life-cycle costs for the National Low-level Waste Program.

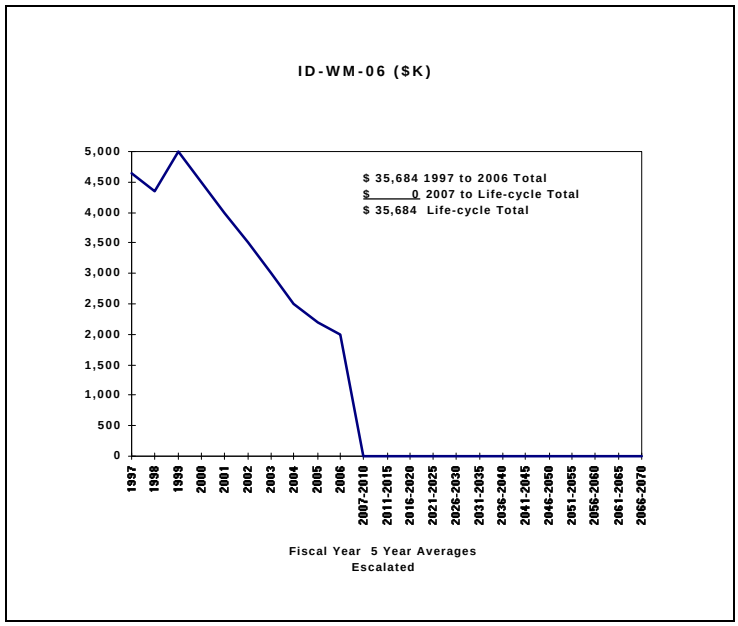

Figure 39. National Low-level Waste Program Life-cycle Cost

Major Milestones—

January 1998	Annual Report to Congress on States' Progress
June 1999	Conference
January 1999	Annual Report to Congress on States' Progress
January 2000	Annual Report to Congress on States' Progress

3.6.7 INEEL Transuranic Waste Project (ID-WM-07)

Mission—Since 1970, transuranic-contaminated wastes generated primarily by nuclear defense research and production operations have been shipped to the INEEL for interim storage at the Radioactive Waste Management Complex. Over 60 percent of the current DOE inventory of transuranic-contaminated waste is stored at the Radioactive Waste Management Complex. This waste is packaged in a variety of containers and continues to await the opening of the Waste Isolation Pilot Plant for transfer to permanent disposal. The transuranic waste inventory also includes a small volume of non-defense transuranic contaminated waste.

The INEEL Transuranic project will accomplish implementation of requirements to allow disposal of transuranic contaminated waste at the Waste Isolation Pilot Plan and complete removal of 3100 cubic meters of waste by December 31, 2002. Storage of remote-handled transuranic waste will continue until turnover of remote-handled transuranic waste storage to the Advanced Mixed Waste Treatment Project by 2006. At that time, base facility operations will be turned over to the Long-Term Treatment, Storage, and Disposal Project.

Scope—Modification and upgrade of existing facilities and nondestructive waste characterization systems will be completed to support implementation of Waste Isolation Pilot Plant requirements and improve operational capability. This will ensure 15,000 55-gallon drums of untreated transuranic waste can be certified for shipment and disposal by December 31, 2002 in accordance with the Idaho Settlement Agreement Milestones.

Retrieval and reconfiguration of the about 4,500 waste containers currently remaining in the Air Support Buildings will be completed by January 1998. Safe and RCRA-compliant storage operations will be continued for remote- handled waste stored in the Intermediate Level Transuranic Storage Facility. Earthen-covered waste will continue to be stored under current waste management practices until retrieval, scheduled to begin in 2003. Small volumes of contact- and remote-handled waste generated by INEEL activities, or by activities performed by others for INEEL, will be stored.

Storage of remote-handled transuranic waste, including mixed remote-handled transuranic waste, will be provided. A portion of this waste will be removed from the Intermediate Level Transuranic Storage Facility and overpacked into shielded containers for storage in the Waste Storage Facility until final dispositioning. The activities outlined above are all included in the Regulatory Compliance Baseline.

2006 End State—Reconfiguration of accessible transuranic contaminated waste to RCRA-compliant storage will be accomplished by January 1, 1998. A minimum of 3100 cubic meters of transuranic waste will be shipped to the Waste Isolation Pilot Plant by December 31, 2002. Transition and turnover of the Transuranic Storage Area Retrieval Enclosure and TRUPACT Loading Facility facilities and equipment to the Advanced Mixed Waste Treatment Project will be completed by 2006. Storage of remote-handled transuranic waste and Radioactive Waste Management Complex Base Operations will continue through 2006. By 2007 responsibility for Radioactive Waste Management Complex Base Operations will be transferred to the Long-Term Treatment, Storage and Disposal project and remote-handled transuranic waste storage will be turned over to the Line-Item project.

Final End State—This project will terminate in FY-2006. All remaining activities associated with transuranic waste will be transferred to the Advanced Mixed Waste Treatment Project and the Long-Term Treatment, Storage and Disposal project.

Cost—Detailed cost estimating was used and estimates are for specific activities that must be performed to accomplish the project activities in full compliance with the regulatory compliance baseline. The activities and costs were verified by a senior internal review board and rolled into a resource-loaded schedule that reflects current baseline compliance operations. We are now in the process of projectizing our activities to obtain further efficiencies. In completing the compliance baseline, an integral component of the projectization will be to perform a critical analysis of our estimates by an independent review team. Figure 40 shows life-cycle costs for the Transuranic Waste Project.

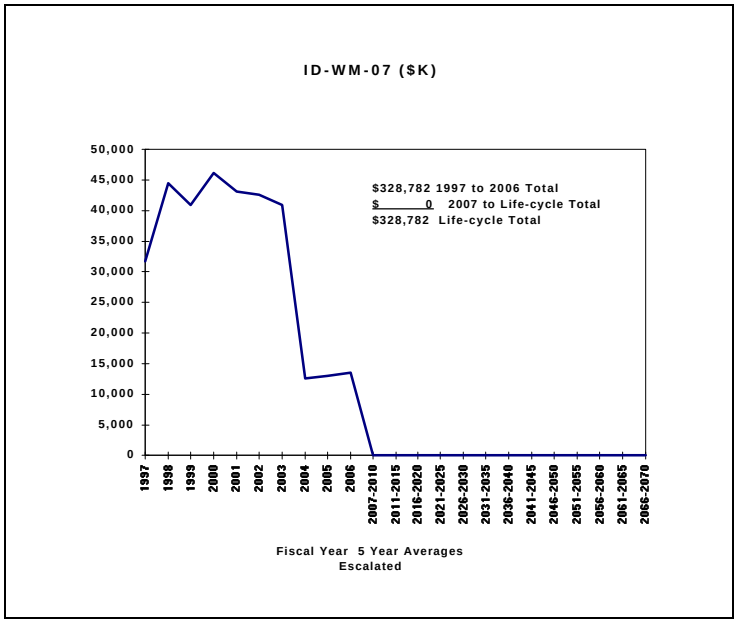

Figure 40. Transuranic Waste Life-cycle Cost

Major Milestones—

August 1997	Complete payload assembly modification
August 1997	Complete Stored Waste Experimentation Pilot Plant modifications
September 1997	Initiate single-shift examination operations
January 1998	Complete reconfiguration of 100 percent of waste from Air Support Buildings into the Waste Storage Facility (Consent Order milestone completed)

May 1998	Initiate production level waste transport to Waste Isolation Pilot Plant
May 1998	Initial shipment available for shipment to Waste Isolation Pilot Plant
September 1998	Complete 50 shipments to Waste Isolation Pilot Plant
September 1999	Complete 100 shipments to Waste Isolation Pilot Plant
September 1999	Complete Stored Waste Experimentation Pilot Plant examination of minimum of 4500 drums
September 2000	Complete 100 shipments to Waste Isolation Pilot Plant
September 2000	Complete Stored Waste Experimentation Pilot Plant examination of minimum of 4500 drums
September 2001	Complete Stored Waste Experimentation Pilot Plant examination of minimum of 4500 drums
September 2001	Complete 100 shipments to Waste Isolation Pilot Plant
September 2001	Implement repackaging glove box capability
September 2002	Complete 100 shipments to Waste Isolation Pilot Plant
September 2002	Complete Stored Waste Experimentation Pilot Plant examination of minimum of 4500 drums
December 2002	Complete shipment of 3,100 cubic meters of transuranic waste to the Waste Isolation Pilot Plant
December 2006	Complete transition of transuranic waste project to the Advanced Mixed Waste Treatment Project

3.6.8 Advanced Mixed Waste Treatment Project Asset Acquisition Project (ID-WM-08)

Mission—The purpose of the Advanced Mixed Waste Treatment Project is to retrieve, treat, and ship 65,000 cubic meters of transuranic mixed waste, currently stored at the INEEL Radioactive Waste Management Complex, for final disposal at the Waste Isolation Pilot Plant. The 65,000 cubic meters of waste primarily resulted from weapons production activities conducted at the Rocky Flats Plant and consists of various solid materials. Approximately 40 percent of the waste does not meet the current Waste Isolation Pilot Plant Waste Acceptance Criteria and, therefore, requires treatment prior to shipment to Waste Isolation Pilot Plant. However, based on the current storage configuration, DOE-ID determined that it would be more cost-effective to treat the entire 65,000 cubic meters. The waste was shipped to the INEEL for interim storage with a commitment that it would be removed from the state and disposed of at a transuranic waste repository.

Scope—The scope of this project includes those activities associated with the Advanced Mixed Waste Treatment Project privatization contract including licensing, permitting, design and construction of the Advanced Mixed Waste Treatment Facility

2006 End State—Construction of the Advanced Mixed Waste Treatment Facility will be complete by December 31, 2002 with operations commencing by March 31, 2003. All pre-construction activities will be complete prior to initiation of construction activities.

Final End State—This project will be complete in FY-2003.

Cost—The costs reflect a fixed-price, competitively-bid contract with British Nuclear Fuels Limited, Inc., signed December 20, 1996, with work beginning January 18, 1997, for licensing, operations, and decontamination and decommissioning associated with the Advanced Mixed Waste Treatment Facility. Figure 41 shows life-cycle costs for the Advanced Mixed Waste Treatment Project Asset Acquisition.

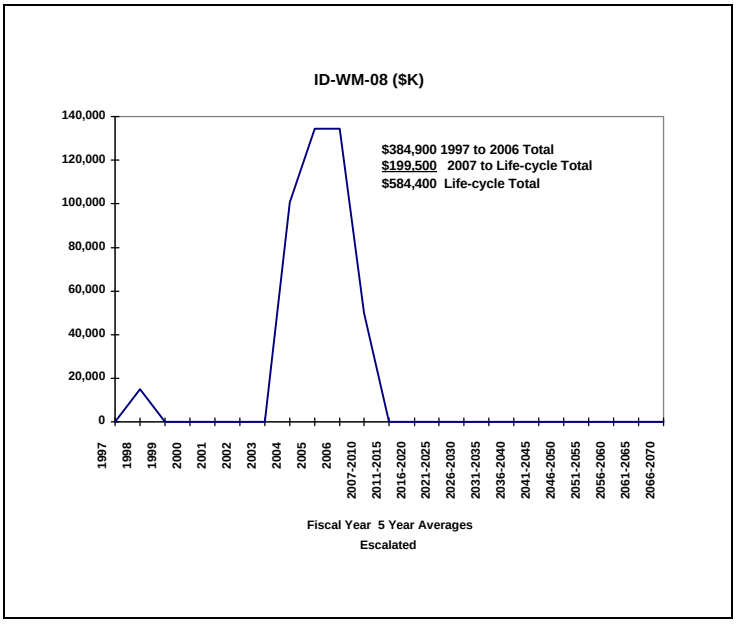

Figure 41. Advanced Mixed Waste Treatment Project Asset Acquisition

Major Milestones—

June 1997	Execute procurement of a mixed-waste treatment facility (this milestone completed by award of contract in December 1996)
October 1999	Initiate Construction of the mixed-waste treatment facility/Phase I complete
December 2002	Complete construction of the mixed-waste treatment facility

3.6.9 Advanced Mixed Waste Treatment Project Operations Project (ID-WM-09)

Mission—The purpose of the Advanced Mixed Waste Treatment Project is to retrieve, treat and ship 65,000 cubic meters of transuranic mixed waste, currently stored at the INEEL Radioactive Waste Management Complex, for final disposal at the Waste Isolation Pilot Plant. The 65,000 cubic meters of waste resulted primarily from weapons production activities conducted at the Rocky Flats Plant, and consists of various solid materials. Approximately 40 percent of the waste does not meet the current Waste Isolation Pilot Plant Waste Acceptance Criteria and, therefore, requires treatment prior to shipment to Waste Isolation Pilot Plant. The waste was shipped to the INEEL for interim storage with a commitment that it would be removed from the state and disposed of at a transuranic waste repository.

Scope—The scope of this project includes the scope necessary to complete a NEPA evaluation of the proposed facility, technical support to DOE-ID, and actual operation, RCRA Closure, and D&D of the facility. Specifically, the scope includes the retrieval of approximately 52,000 cubic meters of mixed waste, contained in boxes, bins, and 55 gallon drums from beneath an earthen-covered berm; the characterization of waste; the treatment of 65,000 cubic meters of waste, achieving a minimum volume reduction of 65 percent, and preparation for shipment to a disposal facility; and the RCRA closure of the treatment facility and Transuranic Storage Area Retrieval Enclosure, and D&D of both facilities and any storage facilities and other government furnished equipment used during the project.

2006 End State—By 2006, Phase I of the Advanced Mixed Waste Treatment Project, including the NEPA evaluation, licensing, permitting, and design will be complete; Phase II, including construction of the treatment facility and transition of Radioactive Waste Management Complex retrieval and storage operations from the Management and Operating contractor to British Nuclear Fuels, Limited, will be complete; and Phase III, production operations, will have commenced. Approximately 25 percent, or 16,200 cubic meters, of the 65,000 cubic meters of stored transuranic waste will have been retrieved, characterized, treated, and shipped to Waste Isolation Pilot Plant for final disposal. In addition, about 300 cubic meters of non-INEEL waste will have been treated and returned to the generator site.

Final End State—Per the Idaho Settlement Agreement the Advanced Mixed Waste Treatment Project will retrieve, characterize, and treat sufficient quantities of waste necessary to maintain a running average of 2,000 cubic meters (6,000 cubic meters per any 3-year period) of waste per year shipped out of Idaho, until the total 65,000 cubic meters of waste is out of Idaho (by December 31, 2015, but no later than December 31, 2018). The contract with British Nuclear Fuels, Limited includes provisions for treating additional wastes from throughout the DOE complex, and it is anticipated that other DOE sites will send mixed wastes to the facility for treatment. Following completion of all treatment, the facility will be closed in accordance with RCRA and decontaminated and decommissioned within approximately 3 years of completing facility operations.

Cost—The costs reflect a fixed-price, competitively-bid contract with British Nuclear Fuels Limited, Inc., signed December 20, 1996, with work beginning January 18, 1997, for licensing, operations, closure and decontamination and decommissioning associated with the Advanced Mixed Waste Treatment Facility. Figure 42 shows life-cycle costs for the Advanced Mixed Waste Treatment Project Production Operations.

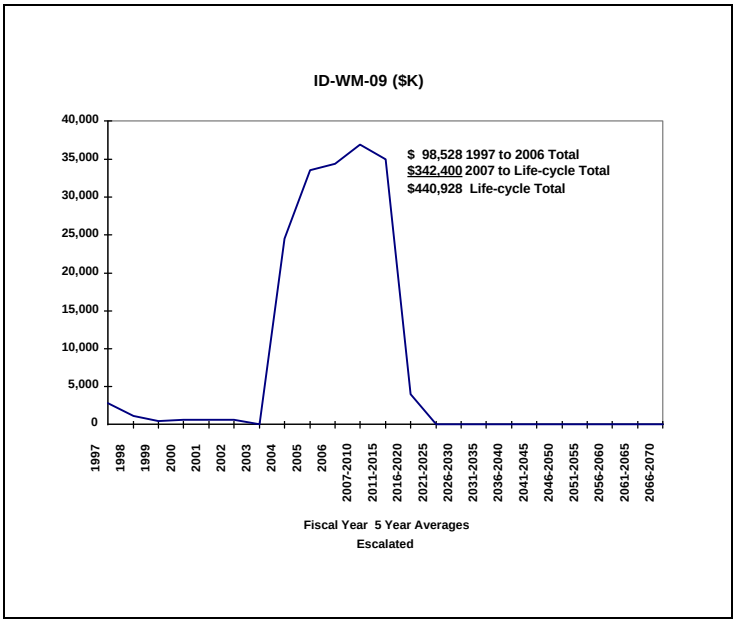

Figure 42. Advanced Mixed Waste Treatment Project Production Operations Life-cycle Cost

Major Milestones—

June 1997	Execute procurement contract for Project (this milestone completed by award of contract in December 1996).
March 2003	Commence Operation of Project
December 2015	Complete treatment and shipment out of Idaho of 65,000 cubic meters of transuranic waste.
Beginning in calendar year 2003	Ship running average of at least 2,00 cubic meters per year (6,000 cubic meters per any 3-year period) transuranic waste out of Idaho.

3.6.10 INEEL Monitoring, Transportation, and Oversight Project (ID-WM-10)

Mission—The purpose of this project is to provide timely, reliable information about radioactive and nonradioactive contaminants in the environment that are associated with past operations as well as current activities at the INEEL. The program is in compliance with applicable regulations and standards, and provides and interprets data needed to help ensure protection of human health and the environment. Compliance to these regulations is maintained by establishing monitoring/surveillance programs, reporting the results, and maintaining project files. The Site-wide water resources program, the focal point for the coordination of the INEEL surface and groundwater activities, is included. The purpose of the Packaging and Transportation Project is to provide safe packaging and transportation for hazardous and waste material. Hazardous and waste material is continually being characterized and shipped to facilities on and offsite.

Scope—The Environmental Monitoring Program is divided into three areas: (1) Environmental Surveillance Program, (2) Water Resources, and (3) Compliance Monitoring. The Environmental Surveillance Program conducts radiological sampling and performs ambient radiation monitoring. SO2/NOx monitoring as well as tasks associated with the National Emission Standards for Hazardous Air Pollutants annual report are also part of the overall Environmental Surveillance Program. Water Resources includes both surface water and groundwater activities. The compliance monitoring control account includes INEEL drinking water, liquid effluent, stormwater monitoring program, and the special request sampling program. Also included are program support and documentation activities, document handling and control for Standard Operating Procedures, program manuals, necessary training for personnel, configuration management, and self-assessments by safety and quality personnel. In addition, the Environmental Management Program supplies the equipment necessary to conduct field operations, maintains a laboratory for sample preparation and shipping, and provides vehicle support.

To maintain compliance with the Department of Transportation and provide safe packaging for the INEEL, the Packaging and Transportation Department provides packaging, transportation, planning, and shipment execution of hazardous, radioactive, and waste material to the INEEL; provides direction and guidance to projects requiring packaging and transportation services; provides annual work packages; provides reports

to DOE; and provides record control and storage. Additionally, the Packaging and Transportation Department provides provide project support during the material characterization process; provide commercially available packaging, Nuclear Regulatory Commission, United Nations, or DOE certified Type A or Type B packaging, and/or packaging design aid; provides package loading, and closing instructions; provides appropriate transportation for packaged material; provides assurance of work performance by independent auditing and assessments; provides communication and coordination between packaging vendors, procurement, and packaging requester; provides Department of Transportation training from authorized sources to packaging and transportation personnel, to maintain packaging and transportation competency.

2006 End State—Environmental Monitoring Projects are mandatory for compliance and continue until FY-2006 when they will be transferred to ID-WM-12. The packaging and transportation project supporting low-level waste, mixed low-level waste, high-level waste, and spent nuclear fuel projects ends in 2006; however, support for INEEL projects requiring packaging and transportation for hazardous and waste material must continue. United States Geological Survey monitoring, meeting the Executive Order, INEEL requirements for State air and water permits, and addressing stakeholder needs will continue for the life of the Waste Management Program.

Final End State—Environmental Monitoring Projects are mandatory for compliance and continue until FY-2006 when they will be transferred to ID-WM-12.

Cost—Detailed cost estimating was used and estimates are for specific activities that must be performed to accomplish the project activities in full compliance with the regulatory compliance baseline. The activities and costs were verified by a senior internal review board and rolled into a resource-loaded schedule that reflects current baseline compliance operations. We are now in the process of projectizing our activities to obtain further efficiencies. In completing the compliance baseline an integral component of the projectization will be to perform a critical analysis of our estimates by an independent review team. Figure 43 shows life-cycle costs for Site-wide Environmental Monitoring, Transportation, and Oversight.

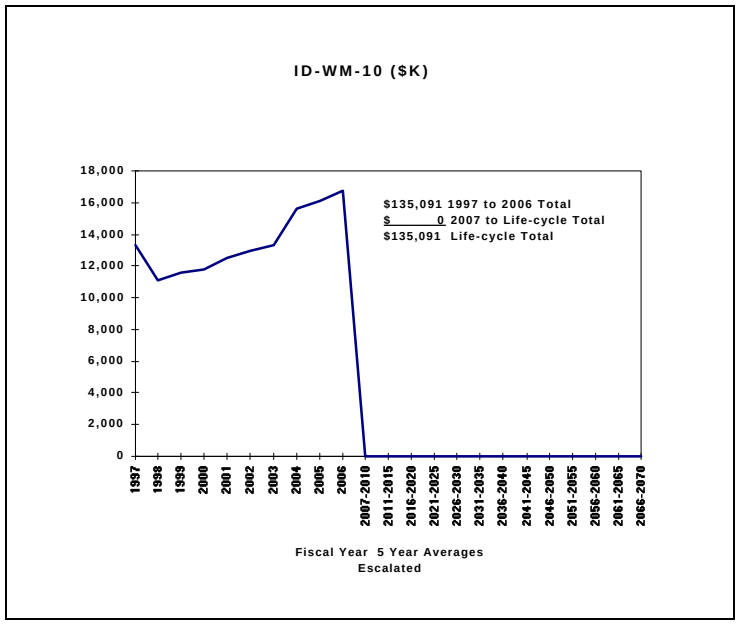

Figure 43. Site-wide Environmental Monitoring, Transportation, and Oversight Life-cycle Cost

Major Milestones—

Annual	National Pollution Discharge Elimination System Discharge Monitoring Reports. Summarizes any discharges at applicable facilities during the past fiscal year.
Annual	Shallow Injection Well Report. Annual reporting of all injection wells at the INEEL.
Annual	Wastewater Land Application Annual Report. Summarizes and discusses results of calendar year Environmental Management Program sampling activities and operational history
Annual	State of Idaho Well Permit Application. Annual reporting of all injection wells at the INEEL.
Annual	National Emission Standards for Hazardous Air Pollutants Annual Report. Compiles air effluent releases for the calendar year
Annual	Environmental Management Annual Report. Summarizes and discusses results of calendar year Environmental Management Program activities

3.6.11 Long-term Treatment, Storage, and Disposal Operations Project (ID-WM-11)

Mission—This project captures all remaining waste management activities following the completion of the predecessor projects through 2006. The purpose of this project is to ensure compliant management of remaining waste and newly generated waste through necessary treatment, storage, and disposal activities after 2006. This project brings a collective focus on the balance of the program and ensures all necessary coordination of closure activities.

Scope—The scope of this project contains all continuing waste management activities to be performed after 2006 and include the following.

1. Newly generated contact handled low-level waste will be treated and disposed at commercial and/or DOE off-site facilities.

2. Operation of the sanitary waste pelletizer which provides supplemental fuel for the Idaho Chemical Processing Plant steam generation plant will be performed.

3. Mixed Low-level Waste Treatment Operations compliance with the INEEL Site Treatment Plan and RCRA and mixed low-level waste awaiting treatment and disposal will be required through 2010. Thereafter, at a storage module at Radioactive Waste Management Complex.

4. Special Case Waste: The scope of the special case waste portion of this project is continue managing all special case waste beyond 2006. This includes identifying and maintaining a current inventory of the special case waste and characterizing the waste as needed.

2006 End State—This project begins after 2006, thus there is no activity prior to 2006.

Final End State—The predecessor Waste Management projects are combined into this project to collectively coordinate the work bringing the Waste Management activities to closure. Operation of the remaining hazardous and mixed low-level waste storage facilities and treatment of newly generated mixed low-level waste by a commercial facility will be transferred to this project beginning in 2004. Low-level waste volume reduction for newly generated waste will be transferred to the low-level waste contact handled off-site treatment/disposal project (ID-WM-02) beginning in 2004. After 2006, permanent disposal of INEEL site-specific disposal problem special case waste will take place in acceptable offsite facilities. A significant amount of work is needed for reactor component special performance assessment required special case waste. The Materials Test Reactor canal will be drained in approximately 2013 and the Advanced Test Reactor canal will be drained sometime between 2020 and 2025, and the resulting special performance assessment required special case waste will be managed. If technical, economic, and political issues are resolved, and a suitable off-site disposal facility is operational, a planning goal has been established to cease contact handled low level waste disposal operations at the Radioactive Waste Management Complex. After 2006, operational low-level radioactive waste generation is expected to remain relatively stable. Disposal of remote handled low-level waste will occur on-site, pending identification of an off-site disposal facility that meets regulatory requirements and transportation issues have been resolved. Discussions with Envirocare, Hanford , and the Nevada Test Site are being considered to receive this waste. After 2006, operational remote handled low-level radioactive waste generation is expected to remain relatively stable throughout this period and treatment or disposal will occur off-site. The Idaho Chemical Processing Plant is scheduled to continue operations through 2035. Low-level Waste Sorting Project will continue at Idaho Chemical Processing Plant in support of low-level waste volume reduction. Low-level waste volume reduction activities at Waste Experimental Reduction Facility (byproduct of mixed low-level waste treatment) ends in 2003. Low-level waste volume reduction will be transferred to the Low-level Waste Contact Handled Off Site Project. After 2006, operational low-level waste generation is expected to remain relatively stable throughout this period and treatment or disposal will likely occur off-site. D&D generation will be sporadic depending on funding availability and priorities. Commercial low-level waste volume reduction and disposal activities for the newly generated waste will continue under this Project Baseline Summary beginning in 2007.

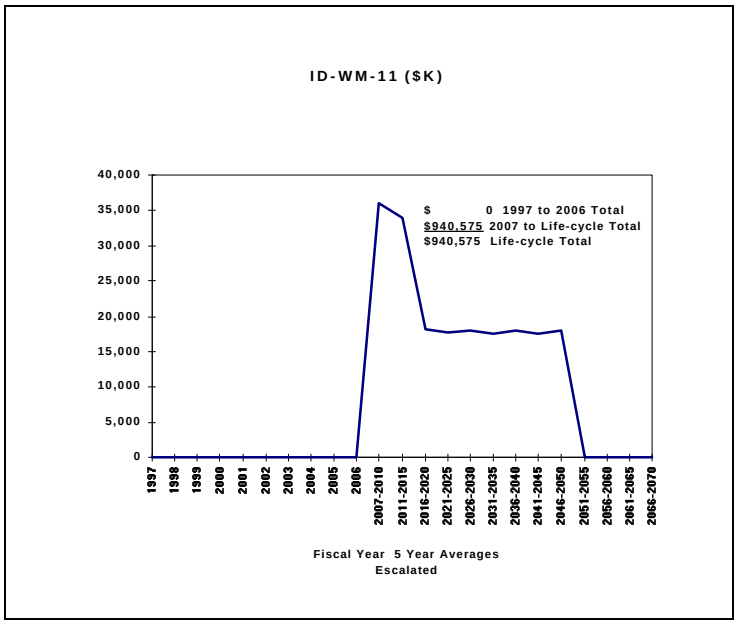

Figure 44. Long-term Treatment, Storage, and Disposal Operations Life-cycle Cost

Cost—Detailed cost estimating was used and estimates are for specific activities that must be performed to accomplish the

project activities in full compliance with the regulatory compliance baseline. The activities and costs were verified by a senior internal review board and rolled into a resource-loaded schedule that reflects current baseline compliance operations. The costs identified contain a pro rata share of the Apportioned Support activities which are on-going cross-cutting business management functional support and services for the Waste Management Program. These tasks are apportioned to each Waste Management Project Baseline Summary in accordance with the budget of each project baseline summary. These Apportioned Support activities provide for the business management and environmental, safety, and health coordinating needs of the Waste Management Program. Figure 44 shows life-cycle costs for Long-term Treatment, Storage, and Disposal Operations.

Major Milestones—

September 2006	Radioactive Waste Management Complex starts RCRA Closure for contact handled low-level waste operations
October 2010	Consolidate mixed low-level waste/heavy water storage
September 2012	Special performance assessment required special case waste removed from Materials Test Reactor Canal and packaged for interim storage and future shipment offsite.
September 2020	Special performance assessment required special case waste removed from Advanced Test Reactor Canal and packaged for interim storage and future shipment offsite.
May 2027	Shipments of special performance assessment required special case waste to deep geological repository begin

3.6.12 Long-term Surveillance and Maintenance Project (ID-WM-12)

Mission—This project is the continuation project beyond 2006 for the Environmental Monitoring, Transportation, and Oversight activities (ID-WM-10).

Scope—This project is the continuation project beyond 2006 for the Environmental Monitoring, Transportation, and Oversight activities (ID-WM-10).

2006 End State—This Long-Term Treatment, Storage, and Disposal Project begins after 2006, thus there is no activity prior to 2006.

Final End State—This project is a continuation of the Environmental Monitoring, Transportation, and Oversight project ID-WM-10. The workscope performed in the other project continues in this project.

Cost—Detailed cost estimating was used and estimates are for specific activities that must be performed to accomplish the project activities in full compliance with the regulatory compliance baseline. We are now in the process of projectizing our activities to obtain further efficiencies. In completing the compliance baseline an integral component of the projectization will be to perform a critical analysis of our estimates by an independent review team. Figure 45 shows life-cycle costs for the Long-term Surveillance and Maintenance Project.

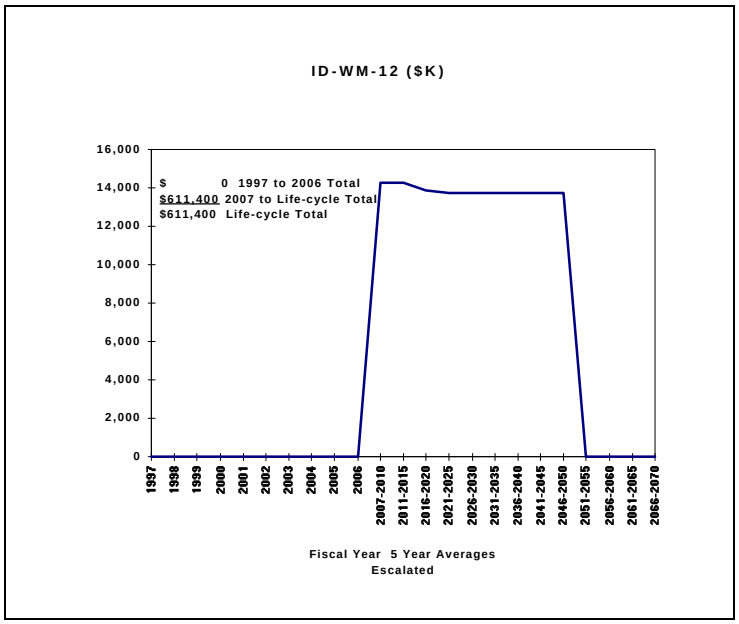

Figure 45. Long-term Surveillance and Maintenance Life-cycle Cost

Major Milestones—

Annual	National Pollution Discharge Elimination System Discharge Monitoring Reports. Summarizes any discharges at applicable facilities during the past fiscal year.
Annual	Shallow Injection Well Report. Annual reporting of all injection wells at the INEEL.
Annual	Wastewater Land Application Annual Report. Summarizes and discusses results of calendar year Environmental Management Program sampling activities and operational history
Annual	State of Idaho Well Permit Application. Annual reporting of all injection wells at the INEEL.
Annual	National Emission Standards for Hazardous Air Pollutants Annual Report. Compiles air effluent releases for the calendar year
Annual	Environmental Management Annual Report. Summarizes and discusses results of calendar year Environmental Management Program activities

Packaging and Transportation milestones are driven by other project baseline summary project milestones, such as mixed low-level waste, low-level waste, Waste Isolation Pilot Plant, transuranic waste, and off-site incineration/disposal.

3.7 High-level Waste Projects

The INEEL manages high-level radioactive waste at the Idaho Chemical Processing Plant. The Idaho Chemical Processing Plant mission was to reprocess spent nuclear fuel for krypton and uranium recovery. Spent nuclear fuel reprocessing stopped in FY-1992 and is not expected to resume.

The Idaho Chemical Processing Plant manages several types of waste: high-level liquid waste, sodium-bearing waste, calcined solid waste, debris and high-efficiency particulate air filters. Although the sodium-bearing waste, debris, and high-efficiency particulate air filters do not meet the definition of high-level waste, they are managed as such due to their similar characteristics. All five types of waste mentioned are considered mixed waste because they contain hazardous components regulated under RCRA. The waste is therefore subject to the Land Disposal Restrictions and is included in the FFA/CO signed with the State of Idaho. The basic management strategy is to convert the liquid high-level waste to a more stable solid form that can be safely stored followed by further treatment for disposal. Figure 46 shows the life-cycle cost summary for the high-level waste projects.

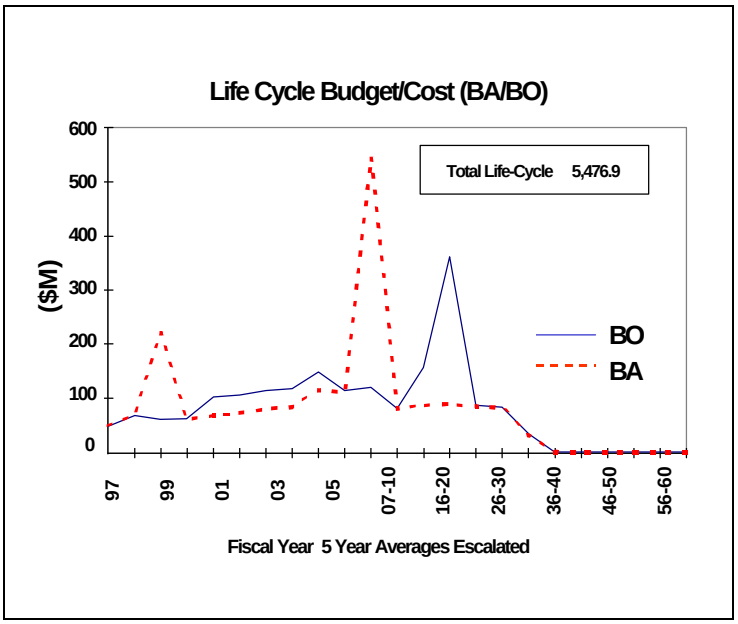

Figure 46. High-level Waste Projects Life-cycle Costs Summary

3.7.1 High-level Waste Pretreatment (ID-HLW-01)

Mission—Irradiated nuclear fuel was reprocessed at the Idaho Chemical Processing Plant from 1953 through 1992 to recover uranium-235 and krypton-85. The resulting acidic, radioactive, high-level liquid waste has been solidified to a high-level waste calcine since 1963 and stored in stainless steel bins enclosed by concrete vaults. Residual high-level liquid waste and radioactive sodium-bearing liquid waste are stored in stainless steel tanks contained in concrete vaults. High efficiency particulate air filters and a variety of equipment are also used during various high-level waste treatment operations. The used filters and mixed waste debris (contaminated used equipment) are also stored and treated. Ultimately, these materials will be converted to low-level waste, low-activity waste grout, and high-activity waste glass. The mission of this project is the safe storage and pretreatment of high-level liquid waste, calcine, used filters, and debris until 2014. After that time, future Idaho Chemical Processing Plant projects and operations will prepare this material for final disposal. The storage of these materials is very visible to the State of Idaho because it is stored over the Snake River Plain aquifer. It is this issue which prompted the legal action that resulted in the Idaho Settlement Agreement. The state feels the storage of the liquid is especially hazardous and should be corrected as soon as possible.

Scope—This project must safely store and treat a variety of radioactive materials which are currently in storage at Idaho Chemical Processing Plant. Additional liquid waste, debris, and used filters are generated by on-going fuel storage, waste treatment, and decontamination activities. Existing and newly generated liquid wastes are concentrated by the High-level Liquid Waste Evaporator, Process Equipment Waste Evaporator, and Liquid Effluent Treatment and Disposal, to minimize stored volume, and are subsequently collected in the Tank Farm. These wastes are then solidified by the New Waste Calcining Facility. The calcine is stored in bin sets until future projects treat it for final disposal. Process offgases are treated, monitored, and released. Used filters are treated at the Filter Leach Facility and mixed debris will be treated by the Debris Treatment Facility; the products from each of these operations is a solid low-level waste which is disposed to the Radioactive Waste Management Complex and a liquid mixed waste which is sent to the Tank Farm. New RCRA compliant tanks will be brought on line in 2010 to collect newly generated liquid waste after the existing tank farm is emptied in 2012. Because the New Waste Calcining Facility does not meet all regulatory requirements which are required for long-term operation, its off-gas treatment system will be upgraded by a $99 million project from 2002-2005 so it will meet the requirements of the Maximum Achievable Control Technology Rule.

2006 End State—In 2006 there will be approximately 2800 cubic meters of radioactive liquid waste, 5400 cubic meters of calcine, no debris, and no used high-efficiency particulate air filters stored at the Idaho Chemical Processing Plant. These changes in volume will result primarily from operating the New Waste Calcining Facility, the Filter Leach Facility, and the Debris Treatment Facility to treat the high-efficiency particulate air filters and mixed waste debris. Although the high-efficiency particulate air filter stored inventory is shown as reaching zero in 2006, this is an assumed schedule. The official schedule is being developed.

Final End State—The New Waste Calcining Facility will continue to operate until 2012 to empty the Tank Farm to comply with the Idaho Settlement Agreement. Newly generated waste will be concentrated by the High-level Liquid Waste Evaporator, to minimize stored volume, and collected in new RCRA compliant tanks after 2012. Calcine storage will continue to be monitored until the bin sets are emptied by High-level Waste Project (ID-HLW-03). Project ID-HLW-01 is terminated at the end of 2014 and Project ID-HLW-03 starts.

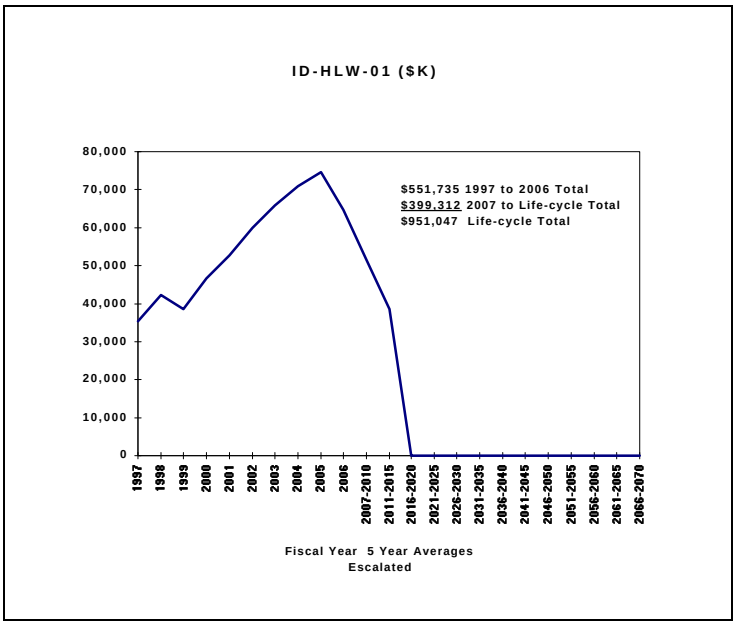

Figure 47. High-level Waste Pretreatment Life-cycle Cost

Cost—The baseline costs contain no contingency. The cost estimates were originally developed as part of the Environmental Management Integration activity performed at the INEEL during

February and March 1996. The costs were then updated in February 1997 to reflect program changes during the intervening 12 months. The costs were reviewed by the Environmental Management Requirements/Defensible Cost Project. The costs are compliance driven. If these activities are not done, several compliance milestones (the primary one is emptying the Tank Farm by 2012) will not be met. Figure 47 shows the life-cycle cost for the High-level Waste Pretreatment Project.

Major Milestones—

October 1996	Commence operation of the High-level Liquid Waste Evaporator
June 1997	Site Treatment Plan approved by the State of Idaho
September 1997	Submit schedule for treatment of New Waste Calcining Facility backlog
December 1997	Operate High-level Liquid Waste Evaporator to reduce Tank Farm volume by 330,000 gallons
March 1998	Procure contracts for debris treatment process
March 1998	Initiate construction of debris treatment process
June 1998	Calcine all remaining non-sodium bearing liquid waste
September 1999	Commence debris treatment system testing
December 1999	EIS ROD
September 2000	Commence debris treatment system operation
September 2000	Submit schedule for debris treatment backlog
June 2001	Commence calcination of sodium-bearing liquid wastes
March 2009	Cease use of waste tanks contained in pillar and panel vaults
December 2012	Complete calcination of sodium-bearing liquid wastes

3.7.2 High-Level Waste Immobilization Facility (Privatized) (ID-HLW-02)

Mission—The purpose of this project is, using a privatized approach, to design and construct the plant which will treat the calcine and any remaining liquid wastes to a disposable form. A new remote handled immobilization facility will begin operation in FY-2020 and will convert both liquid and calcine to disposable forms. This process may consist of calcine retrieval, calcine dissolution, radionuclide separations, and high activity waste vitrification. All of these processes are highly technical, one-of-kind systems. When this project is complete, the immobilization facility will be available to treat liquid and calcine wastes to final, disposable forms. Facilities will also be available for interim storage of these immobilized wastes until a final repository is available.

Scope—At the end of the High-level Waste Pretreatment Project (ID-HLW-01), there will be approximately 6000 cubic meters of calcine stored at the Idaho Chemical Processing Plant and there will also be some liquid waste produced after this time. These wastes must be converted to disposable forms. This project will design and construct a new remote handled immobilization facility which will begin operation in FY-2020. It will convert both liquid and calcine to waste forms which are suitable for final

disposal. This project will also provide for interim storage for the immobilized material until a final repository is available. Storage modules will be provided as needed, so this project will exist beyond the 2020 facility start-up date.

2006 End State—The project does not begin until 2010.

Final End State—The immobilization facility will be designed and constructed. Immobilized waste interim storage modules will be provided as needed beyond 2020.

Cost—The costs shown in this project are only the capital expenditures. Any reduction or delay in funding would jeopardize meeting the Idaho Settlement Agreement requirement to complete calcine treatment by 2035. Figure 48 shows life-cycle cost for the High-level Waste Immobilization Facility.

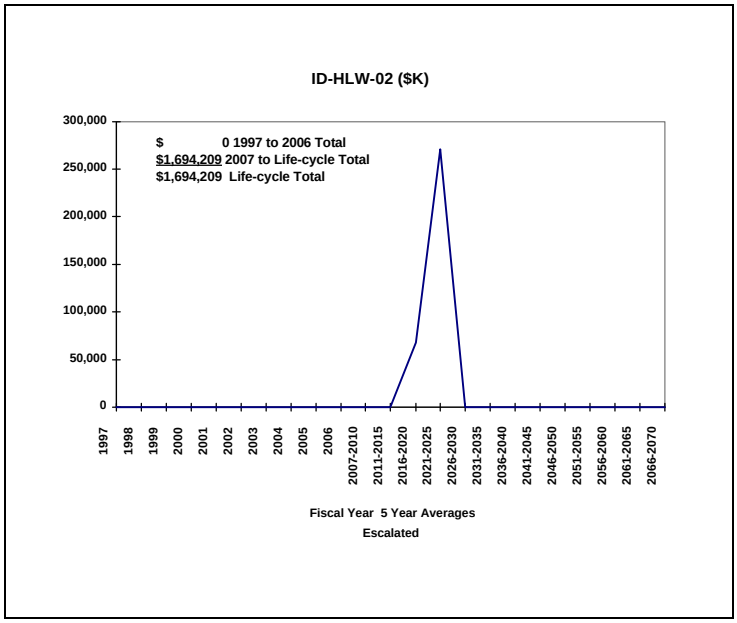

Figure 48. High-level Waste Immobilization Facility Life-cycle Cost

Major Milestones—

September 2009	Complete preliminary facility design
September 2012	Complete detailed facility design
September 2017	Complete facility construction
September 2031	Complete high-level waste storage modules

3.7.3 High-Level Waste Treatment (ID-HLW-03)

Mission—The purpose of this project, which starts in 2015 after Project ID-HLW-01 is complete, is to safely store, treat, and dispose of high-level liquid waste, calcine, used filters, debris, low-activity waste grout, and high-activity waste glass until completion of Idaho Chemical Processing Plant operations. When this project is complete, all high-level waste-related materials will be converted to low-level waste, grout, and glass forms. The low-level waste and grout will be disposed to their respective long-term storage locations and the glass will be in on site interim storage. Most of the plant will be closed and the remaining waste treatment facilities will be ready for closure activities to begin. This project is of great interest to the State of Idaho and other stakeholders. This is one of the issues which prompted the legal action that resulted in the Idaho Settlement Agreement.

Scope—High-level liquid waste, calcine, debris, and used high-efficiency particulate air filters are generated and stored at the Idaho Chemical Processing Plant. During the course of the High-level waste Pretreatment Project (ID-HLW-01), the high-level liquid waste will be converted to calcine and debris and filters will be treated to prepare them for disposal. After the calcining is complete and tank farm facilities are systematically flushed and shut down. The overall scope for this project is to convert the pretreated waste to disposable forms. After 2014, used filters continue to be treated by the Filter Leach Facility and mixed debris is treated by the Debris Treatment Facility. The resulting liquid from these processes as well as newly generated liquid wastes from other Idaho Chemical Processing Plant activities are concentrated by the High-level Liquid Waste Evaporator, Process Equipment Waste Evaporator, and Liquid Effluent Treatment and Disposal to minimize stored volume, and are collected in new RCRA compliant tanks. Process offgases are treated, monitored, and released. A new remote handled immobilization facility begins operation in FY-2020 and it separates both liquid (accumulated from 2012 to 2020) and calcine into low-activity waste and high-activity waste fractions.

2006 End State—This project does not begin until FY-2015.

Final End State—Newly generated waste will be concentrated by the High-level Liquid Waste Evaporator, to minimize stored volume, and collected in new RCRA compliant tanks. Calcine stored in the bin sets will be monitored. The remote handled immobilization facility will begin operation in FY-2020 and will complete calcine treatment in FY-2035 to comply with the Idaho Settlement Agreement. Used filters and debris will continue to be treated until their inventories are reduced to zero. After 2035, the waste treatment facilities will be flushed and readied for closure activities to begin.

Cost—The baseline costs contain no contingency. The costs are compliance driven; the primary drivers are the INEEL Site Treatment Plan and the Idaho Settlement Agreement. If these activities are not done, the major Idaho Settlement Agreement milestone, to have the high-level waste ready to leave the state and go to the repository by 2035, will not be met. Figure 49 shows the life-cycle costs for the High-level Waste Treatment Project.

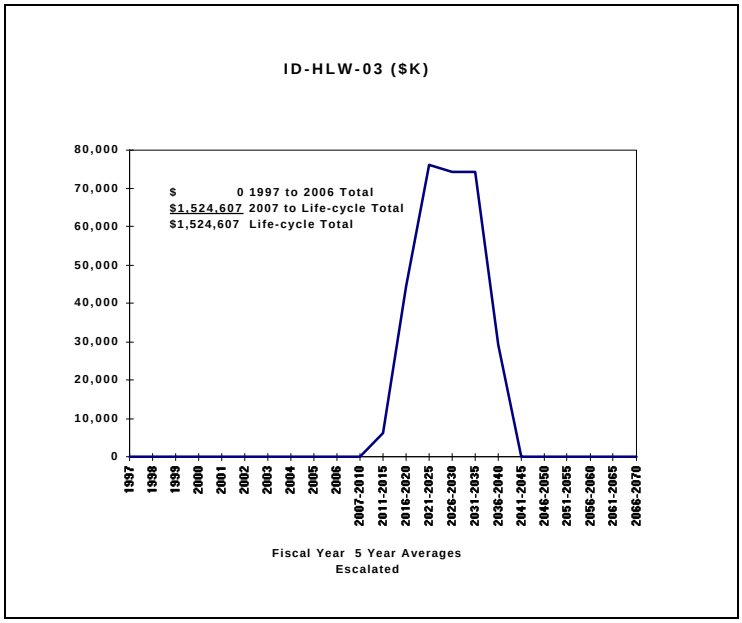

Figure 49. High-level Waste Treatment Life-cycle Cost

Major Milestones—

December 2035	Treat all high-level waste so that it is ready to be moved out of Idaho

3.7.4 Vitrified High-Level Waste Storage (ID-HLW-04)

Mission—The purpose of this project is to safely store high-activity waste glass after the high-level waste projects are complete and until the glass can be shipped for disposal. The high-activity waste glass storage facility will be a safe, simple, easily maintained, and easily monitored facility. The technical approach will be to simply monitor the storage facility. Although storage of the glass entails minimum risk, it will be still be of concern to the State of Idaho and other stakeholders. It is this issue which prompted the legal action that resulted in the Idaho Settlement Agreement.

Scope—In Project ID-HLW-03, a new remote handled immobilization facility begins operation that separates both liquid and calcine into low-activity waste and high-activity waste fractions. These waste fractions are immobilized for final disposal. This project will provide interim, on-site storage for the high-activity waste glass from the time treatment is complete (2035) until final disposal.

2006 End State—This project does not begin until FY-2036.

Final End State—Safely store the high-activity waste glass until it is transferred to a geologic repository.

Cost—The baseline costs contain no contingency. The costs are compliance driven; the primary drivers are the INEEL Site Treatment Plan and the Idaho Settlement Agreement. Figure 50 shows the life-cycle costs for the Vitrified High-level Waste Storage Project.

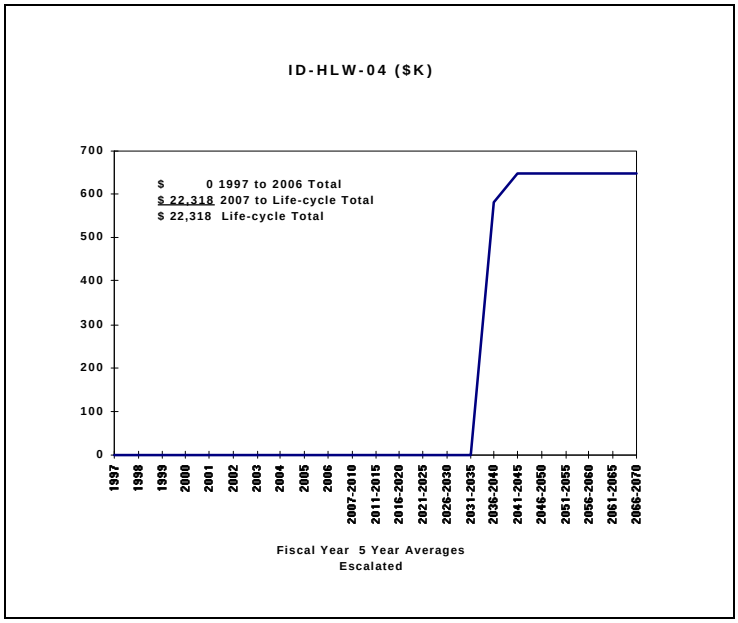

Figure 50. Vitrified High-level Waste Storage Life-cycle Cost

Major Milestones—

October 2035	Begin long term storage of high-activity waste glass

3.7.5 Low Activity Waste Treatment Facility (ID-HLW-05)

Mission—The purpose of this project is to construct a low-activity waste grouting facility as a privatized project. The technical approach is for a private company to design and build a facility which can reliably grout radioactive waste of several compositions, produce a suitable product, and transfer the product to on-site storage locations. The major technical issue with the grout facility is whether it should be designed to place grout on-site for disposal or in drums so the grout can be transported to alternate locations. When this project is complete, the grout process will be operating reliably on radioactive feed and methods to transfer the grout to on-site storage locations will be finished.

Scope—The scope of this project is to design and build a facility that can:

1. provide non-radioactive grout to immobilize the heels in two of the 300,000-gallon waste tanks during the 2004-06 time frame, as a demonstration;

2. from 2007 to 2020, grout newly generated waste;

3. from 2020 to 2035 grout the low activity waste fraction from the radionuclide separations process; and

4. transfer grout to the designated on-site storage locations.

2006 End State—The grout facility will be operational for producing non-radioactive product and will have immobilized the heels in two 300,000-gallon waste tanks.

Final End State—The grout facility will, from 2007 to 2020, grout newly generated waste which is sufficiently free from radioactivity that it can be immobilized and disposed without treatment by the radionuclide separations process. This project will also provide the capital equipment necessary to transfer the grout to the on-site storage locations.

Cost—The costs are compliance driven; the primary drivers are the INEEL Site Treatment Plan and the Idaho Settlement Agreement. A cost savings of 20 percent in both the capital and operating costs, over the M&O approach, is assumed for the privatized facility. If this project is not funded, the Tank Farm tanks will not be RCRA closed and final waste disposal readiness by 2035 will not be achieved as required by the Idaho Settlement Agreement. Figure 51 shows the life-cycle costs for the Low Activity Waste Treatment Project.

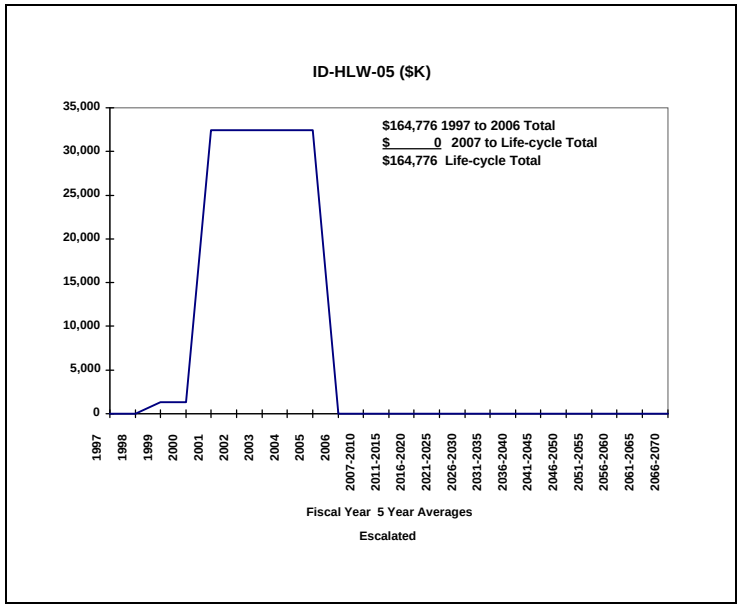

Figure 51. Low Activity Waste Treatment Life-cycle Cost

Major Milestones—

September 2000	Complete preliminary facility design
September 2001	Complete detailed facility design
September 2003	Complete construction of the low-activity waste grouting facility so it is ready to produce non-radioactive grout to immobilize the heels in two 300,000-gallon waste tanks.
September 2007	Complete modifications to grouting facility as necessary to grout radioactive waste

September 2021 Complete grout storage construction

3.7.6 High-Level Waste Treatment Feasibility, EIS, and Technology (ID-HLW-06)

Mission—The purpose of this project is to prepare the High-level Waste EIS in order to reach an ROD on the treatment and storage or disposal of the high-level waste. It also includes the feasibility studies, other project support, and technology development required to support the EIS and the design and construction of the High-level Waste Immobilization Facility (Project ID-HLW-02) and the Low Activity Waste Treatment Facility (Project ID-HLW-05). When this project is complete, the facilities will be operational to convert all high-level waste-related materials to grout and glass forms. This project is very visible to the state of Idaho because it is part of the mechanism by which the Idaho Settlement Agreement deadlines, for emptying the Tank Farm by 2012 and having all high-level waste ready to leave the state by 2035, will be met.

Scope—This project includes the preparation of the High-level Waste EIS to reach an ROD on the treatment and storage or disposal of the High-level Waste. It also includes the feasibility studies, other project support, and technology development required to support the EIS and the design and construction of the High-level Waste Immobilization Facility and the Low Activity Waste Treatment Facility. In addition, the production costs for operating the grout facility thru 2038 are provided by this project.

2006 End State—The EIS-ROD will be completed and process development work will be in progress.

Final End State—Process development and support to the immobilization facility will be completed.

Cost—The baseline costs provided contain no contingency. An escalation factor of 2.7 percent per year was applied to the costs for all projects for the years 1999 through 2006; costs incurred beyond 2006 were multiplied by the 2006 escalation factor. The costs are compliance driven; the primary drivers are the INEEL Site Treatment Plan and the Idaho Settlement Agreement. During 1997, 1998, and 1999, a dual path approach is being pursued for the High-level Waste Program. This is to assure rapid development of the ROD basic path for treating high-level waste to meet the 2012 date to empty the Tank Farm. Figure 52 shows the life-cycle costs for the High-level Waste Immobilization Facility.

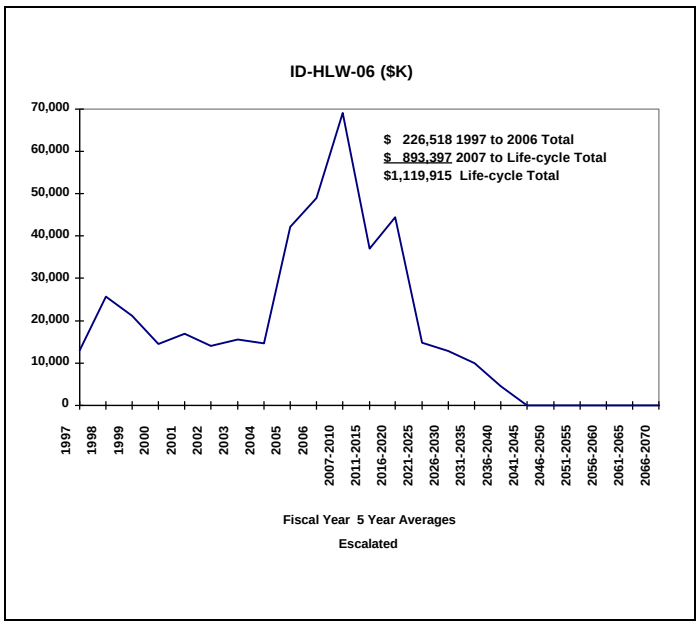

Figure 52. High-level Waste Immobilization Facility Life-cycle Cost

Major Milestones—

July 1997	Solicit proposals for feasibility studies for treatment of calcined waste
December 1999	Commence negotiating a plan and schedule for calcined waste treatment
December 1999	Identify Remote Handled Immobilization Facility funding requirements
September 2005	Submit milestones/planning dates for the Remote Handled Immobilization Facility
December 2009	Issue record of decision for calcined waste treatment
December 2012	Submit application for a RCRA Part B permit for calcined waste treatment

3.8 Infrastructure Projects

The Office of Infrastructure Management coordinates and oversees the orderly transition of contaminated structures and facilities from other DOE programs to the Environmental Management Program that puts those facilities into a safe, low-risk maintenance mode, and provides overall INEEL landlord functions.

The INEEL landlord functions support the general plant projects and line-item construction projects that will correct deficiencies in environmental, utility, fire, and facility infrastructure systems. Also, general purpose capital equipment will be acquired and managed in support of the INEEL's missions. The landlord function also provides an integrated and comprehensive facility planning system. Figure 53 shows the life-cycle cost summary for the Infrastructure Projects.

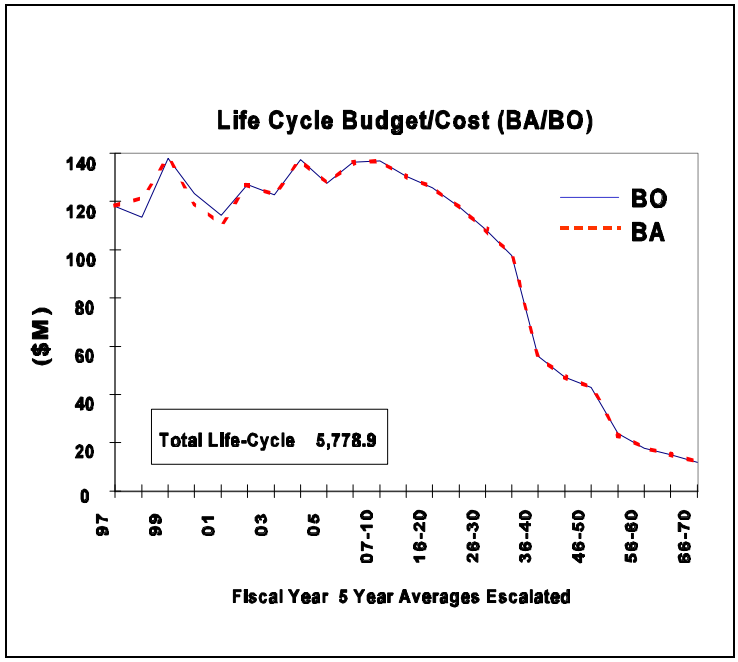

Figure 53. Infrastructure Projects Life-cycle Costs Summary

3.8.1 INEEL Infrastructure Operations (ID-OIM-01)

Mission—The mission of Infrastructure Operations is to perform core functions required by multiple programs at the INEEL. The primary mission includes sitewide, Idaho Chemical Processing Plant, and the Facility Disposal Initiative core functions.

Scope—The INEEL Infrastructure Operations performs site-wide, Idaho Chemical Processing Plant, and Facility Disposal Initiative core functions. The site-wide core functions include U.S. Geological Survey Gauging Station Network, Oversight/State Permits, Land & Environmental Issues, Meteorological Monitoring, Integrated Facility Planning, Program Management and Development, Seismic Monitoring Program, Flood Mitigation, Experimental Breeder Reactor National Monument, Emergency Preparedness Program, Environmental Affairs, Regulatory Policy & Guidance, Safety and Health Corrections, Stores Inventory, Architectural-Engineering Standards Manual/Cost Estimating Manual and Historically Black Colleges and Universities/Minority Institutions. The Idaho Chemical Processing Plant core functions include Operations and Maintenance associated with 2 Oil Fired Boilers for back-up Steam and Condensate Distribution, a Plant Wide Electrical Distribution System, Fire Protection, Evacuation Alarm and Voice Paging Systems, Water Production and Distribution, Heating, Ventilating, and Air Conditioning, Plant Breathing and Compressed Air, and the Sanitary Waste Systems. The Coal Fired Steam Generating Facility includes operations and maintenance for 2 Fluidized Bed Boilers and associated equipment. The landlord services provides infrastructure management operations and maintenance for Idaho Chemical Processing Plant facilities, structures, and roads and grounds, corrections of environmental, safety, and health deficiencies, preventive maintenance, custodial services excessing and disposal of surplus equipment/materials, and funding for Idaho Chemical Processing Plant electrical power; Idaho Chemical Processing Plant infrastructure technical services including engineering, nuclear safety, and management oversight. The Facility Disposal Initiative core functions include planning, sampling, characterization and disposal of non-contaminated nonessential facilities at the INEEL.

2006 End State—The Infrastructure Operations Project will continue beyond FY-2006. Infrastructure Operations will be needed in order to maintain core activities. These activities will continue for Site Operations and Environmental Management Missions to ensure the INEEL remains in compliance with all regulatory requirements and addresses all safety and health issues.

Final End State—The Infrastructure Operations Project will continue to exist and provide program requirements until the completion of the existing Environmental Management program missions of high-level waste, spent nuclear fuel, waste management, deactivation, and Environmental Restoration. The Idaho Chemical Processing Plant portion will continue to support high-level waste and spend nuclear fuel activities until their completion (approximately 2038) at which time the funding profile reflects a reduction in project costs.

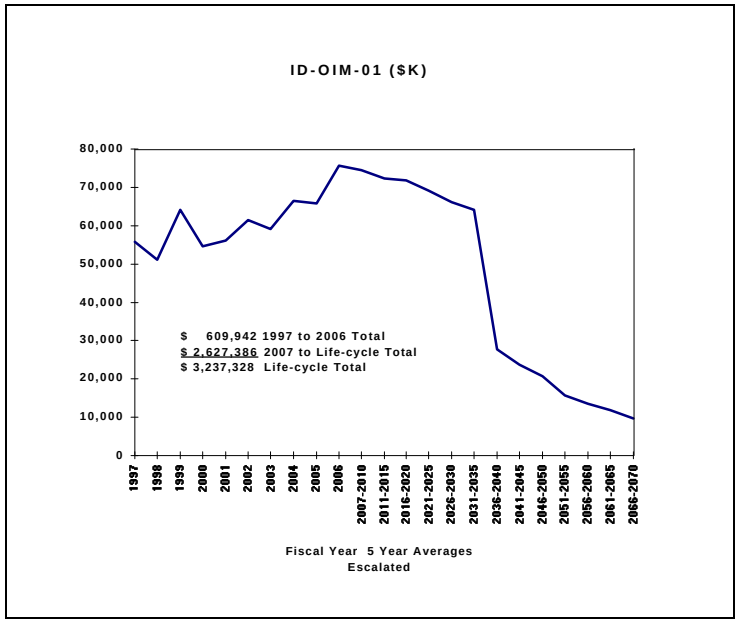

Figure 54. Infrastructure Operations Life-cycle Cost

Cost—FY-1997 through FY-2006 dollars are based on Rev. 6 of the Environmental Management Integration List. FY-2007 through 2070 are based on Discussion Draft projections. Escalation has been applied starting in FY-1999, using an incremental value of 2.7 percent compounded through FY-2006. Beyond FY-2006, no escalation factors were applied. Defense Programs will fund Idaho Chemical Processing Plant Safeguards and Security through FY-2005. At FY-2006 and beyond, Environmental Management will take over the responsibility of the Idaho Chemical Processing Plant Safeguard and Security activities. Figure 54 shows the life-cycle costs for Infrastructure Operations.

Major Milestones—

April 1997	Complete CPP-651 special nuclear materials semi-annual inventory.
May 1997	Complete demolition of three Central Facilities Area buildings.
June 1997	Complete Storm Water Pollution Prevention Plan corrective actions.
June 1997	Complete Annual Update INEEL Chemical Management System.
September 1997	Annual Update Comprehensive Facility and Land Use Plan.
September 1997	Complete Annual Coal-Fired Steam Generating Facility Boiler Inspection.
September 2005	CPP-651 Defense Programs Special Nuclear Material Shipped Offsite.

3.8.2 INEEL Infrastructure Construction (ID-OIM-02)

Mission—The mission of this project is to provide infrastructure facilities and systems to multi-programmatic activities including, but not limited to facilities, utilities, roads, and capital equipment. Failure to maintain a viable infrastructure will greatly impact the INEEL's ability to maintain safe and efficient operations. The completion of all subprojects will be necessary for spent fuel and high-level waste programs to reach the milestones established in the Idaho Settlement Agreement.

Scope—The Infrastructure Construction Project contains a variety of multi-program and general purpose infrastructure capital improvement requirements including smaller capital improvements in the form of general plant projects, and the acquisition of general purpose capital equipment and Idaho Chemical Processing Plant capital equipment requiring minor installation, as well as proposed funding for outyear Line-Item Construction Projects. The Infrastructure Construction Project provides for the planning, management, design, procurement, and construction activities required for the execution of all Idaho Chemical Processing Plant and sitewide capital improvements. Environmental Management's focus on waste cleanup and packaging will require that most infrastructure construction funds be utilized for Environmental Management mission needs. As the site increases with age, the need for infrastructure construction funding to support and maintain the INEEL's 30+ year old infrastructure is critical to site operations.

2006 End State—All Sitewide General Plant Projects approved and constructed from FY-1996 through FY-2004, all Sitewide Line-Item Construction Projects approved and constructed from FY-1996 through FY-2002, and all Sitewide general purpose capital equipment/capital equipment approved and acquired

from FY-1996 through FY-2005, will be completed and fully operational. All Idaho Chemical Processing Plant General Plant Projects approved and constructed through FY-2005, and all Idaho Chemical Processing Plant Line-Item Construction Projects approved and constructed through FY-2002, will be completed and fully operational.

Final End State—Beginning in FY-2020 Environmental Management funded infrastructure construction projects will decline in proportion to the remaining Environmental Management scope of work at the INEEL. Construction required to accomplish existing and planned missions will be performed to include modifications of existing facilities, replacement of existing obsolete equipment and construction of new support facilities and utilities to support the INEEL, Environmental Management proposed mission.

Cost—Cost estimates have been prepared based on an activity-based cost estimating method. Project Cost estimates are developed at each phase of the project per the INEEL Cost Estimating Guide. Theses phases are identified as (1) Conceptual Design, (2) Title II Design; and (3) Approved for Construction. Cost estimates are prepared to encompass all scope required to ensure this project supports compliance with the, FFA/CO, and the Idaho Settlement Agreement. Figure 55 shows the life-cycle costs for Infrastructure Construction Projects.

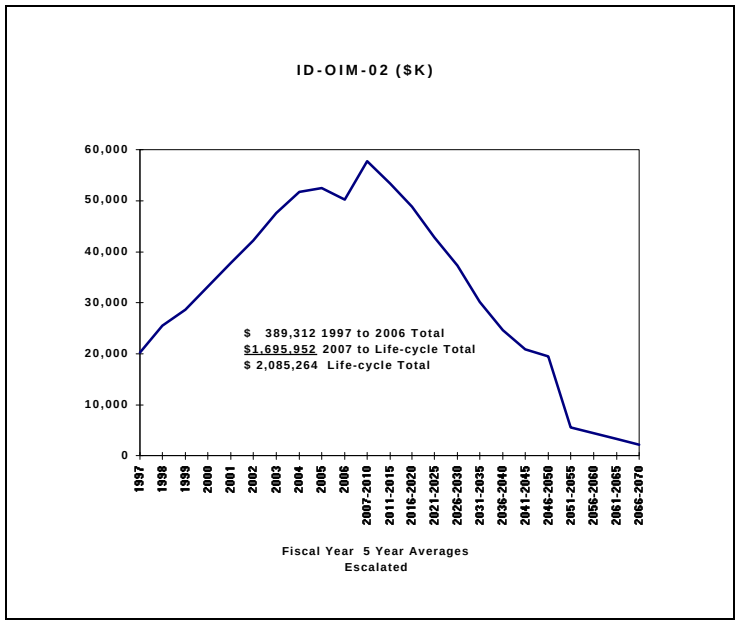

Figure 55. Infrastructure Construction Projects Life-cycle Cost

Major Milestones—

September 1997	Complete General Plant Project construction activities for current year minus one.
October 1997	Initiate General Plant Project title design activities for the current year.
September 1998	Complete acquisition and installation of current year prioritized general purpose capital equipment.
September 2002	Complete construction Health Physics Instrumentation Lab.
September 2003-2050	Complete outyear Line-Item Construction Project requirements.

3.8.3 INEEL Medical Facility Project (ID-OIM-03)

Mission—The INEEL Medical Facility is a FY-1994 Line-Item Construction Project that is currently in final closeout with 99.9 percent of all construction completed. Final closeout completion is scheduled for June 1997. This project will provide a completed and fully functional Medical Facility supporting the INEEL's Occupational Medical Program.

Scope—This project provides for the design, procurement, and construction activities necessary to improve and upgrade the Occupational Medical Program by providing a new replacement facility at the INEEL. The facility will primarily function as a medical clinic for yearly physicals of INEEL employees, treatment of minor employee accidents, drug testing, therapy, storage of medical records, emergency room activities, and a decontamination area for wash down of workers involved in radiation or toxin related accidents.

2006 End State—The INEEL Medical Facilities Project will be complete in FY-1997.

Final End State—Completed and fully functional Medical Facility turned over to the Occupational Medical Program.

Cost—The project costs are based upon activity based costs and standard industry accepted estimating basis. Project Cost estimates are developed at each phase of the project per the INEEL Cost Estimating Guide. Figure 56 shows the life-cycle costs for the Medical Facility.

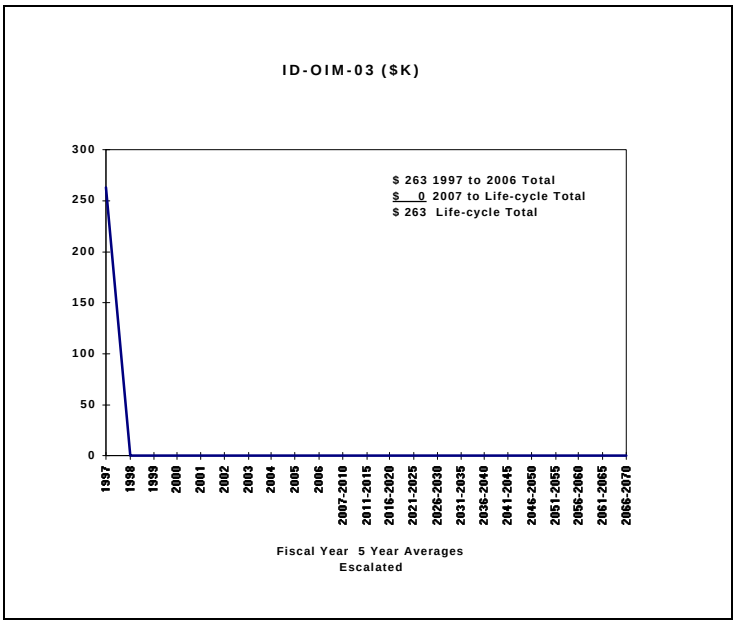

Figure 56. Medical Facility Life-cycle Cost

Major Milestones—

June 1997	Project Closeout

3.8.4 INEEL Emergency Response Facility (ID-OIM-04)

Mission—The INEEL Emergency Response Facilities is an FY-1994 Line-Item Construction Project that is currently at 93 percent of all construction completed. Final closeout completion is scheduled for January 1998. The INEEL Emergency Response Facilities project will provide a fully operational fire station and fire fighter training facility meeting current codes and standards.

Scope—This project provides for the design, procurement, and construction of a new fire station and fire fighter training facility at the Central Facilities Area. The new fire station will be a pre-engineered, metal building system. The Fire Training Facility will provide space for live fire training exercises and a training tower. The new station and training facility will be located adjacent to the Central Facilities Area to enhance response time for emergency vehicles.

2006 End State—The INEEL Emergency Response Facilities will be complete in FY-1997.

Final End State—The INEEL Emergency Response Facilities project will provide a fully operational fire station and fire fighter training facility meeting current codes and standards.

Cost—The costs are based upon activity based costs and standard industry accepted estimating basis. Project Cost estimates are developed at each phase of the project per the INEEL Cost Estimating Guide. Figure 57 shows the life-cycle costs for the Emergency Response Facility.

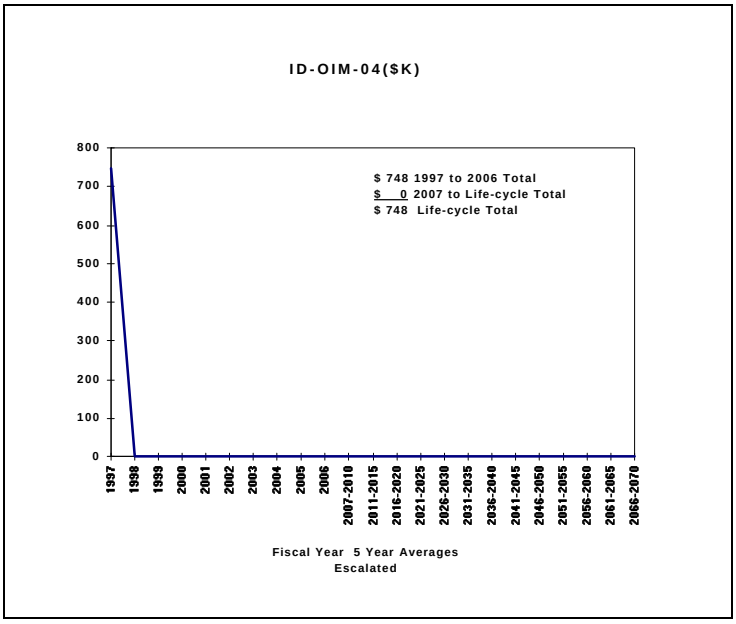

Figure 57. Emergency Response Facility Life-cycle Cost

Major Milestones—

May 1997	Complete Construction Central Facilities Area Fire Training Facility.
January 1998	Complete Project Close-out.

3.8.5 Security Facilities Consolidation (ID-OIM-05)

Mission—The Idaho Chemical Processing Plant Security Facilities Consolidation Line-Item Construction Project will provide new facilities and equipment to support the Idaho Chemical Processing Plant security organization by resolving DOE Order Compliance, inspection, and evaluation findings and life expectancy/life cycle replacement concerns. Construction of this project will allow deactivation of the existing security perimeter surrounding the overall Idaho Chemical Processing Plant site, accommodate changes to the Idaho Chemical Processing Plant mission, decrease plant operating costs, and support environmental remediation projects.

Scope—Category I and II quantities of special nuclear material will be consolidated at two existing Idaho Chemical Processing Plant storage facilities. The project will construct a new Protected Area security perimeter around CPP-651 and upgrade existing security equipment at CPP-749. The access control

facility will provide space for security equipment to monitor personnel/vehicular access into the Protected Area, and will be serviced with standard utilities. These facilities will support required security inspections, provide a radiological contamination control point, and support personnel accountability during emergency evacuations.

2006 End State—This project will be completed in FY-1999 and will meet the Environmental Management site end state.

Final End State—Construction of this project will allow deactivation of the existing security perimeter surrounding the overall Idaho Chemical Processing Plant site, accommodate changes to the Idaho Chemical Processing Plant mission, decrease plant operating costs, and support environmental remediation projects.

Cost—Figure 58 shows the life-cycle costs for the Security Facilities Consolidation Project.

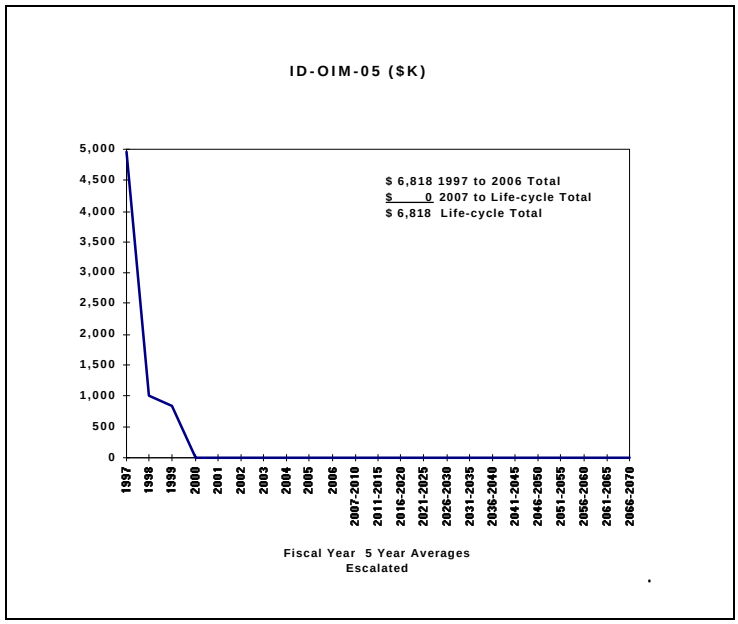

Figure 58. Security Facilities Consolidation Project Life-cycle Cost

Major Milestones—

March 1993	Complete Project Conceptual Design Report.
February 1994	Complete the Functional and Operational Requirements.
September 1994	Complete the initial Project Management Plan.
January 1995	Start Title Design.
September 1998	Complete A/E Design.
March 1999	Complete Construction.
May 1999	Project Closeout.

3.8.6 Electrical Utility Systems Upgrade (ID-OIM-06)

Mission—The purpose of the Idaho Chemical Processing Plant Electrical and Utility Systems Upgrade Project is to upgrade the Idaho Chemical Processing Plant electrical utility systems by correcting high risk life, safety, and health deficiencies. The project corrects safety and code deficiencies by installing duct banks to separate high and low voltage systems, installing/modifying substations and load centers to eliminate overloaded equipment, reconfiguring electrical service entrances to eliminate multiple entrances,

replacing existing panels and switchgear that constitute fire hazards, and upgrading the existing Standby Power System to provide reliable power during loss of commercial power.

Scope—The Electrical and Utility Systems Upgrade Project will upgrade the Idaho Chemical Processing Plant electrical utility system by correcting high risk life-safety and health deficiencies. The scope of this project includes upgrades to the normal and standby-power electrical systems. The system upgrades, improvements, and corrections, listed in order of priority include the following:

- Installation of a new 13.8 kV high voltage electrical ductbank (approximately 15,000 linear feet) and manhole system to correct high-low voltage separation safety and code compliance problems.
- Modifying, relocating, or new installation of seven 13.8 kV substations and eight load centers to eliminate overloaded conditions on existing electrical distribution systems.
- Upgrading the existing standby power network and control system and installation of one new 2000 kVA (nominal) diesel generator to provide reliable standby power during commercial power outages to equipment that provides for containment and control of radioactive and fissile materials, environmental monitoring, security functions, and personnel and property protection.
- Replacement of approximately two hundred 20-40 year old panelboards and associated switchgear in 20-25 existing buildings that present a significant fire hazard.
- Reconfiguration of electrical service equipment in approximately eight existing buildings to eliminate multiple electric service entrances that violate code and constitute fire and safety hazards for workers and occupants.

The design will be performed by the operating contractor's Facility Engineering (design) Organization. The construction and procurement will be accomplished by fixed price contracts and subcontracts awarded on the basis of competitive bidding to the maximum extent feasible. A portion of the facility construction work will be performed by the contractor's force account personnel due to the number of changed conditions expected in some of the older, contaminated facilities. Title III inspection will be accomplished by the operating contractor. DOE-ID will provide oversight of the project.

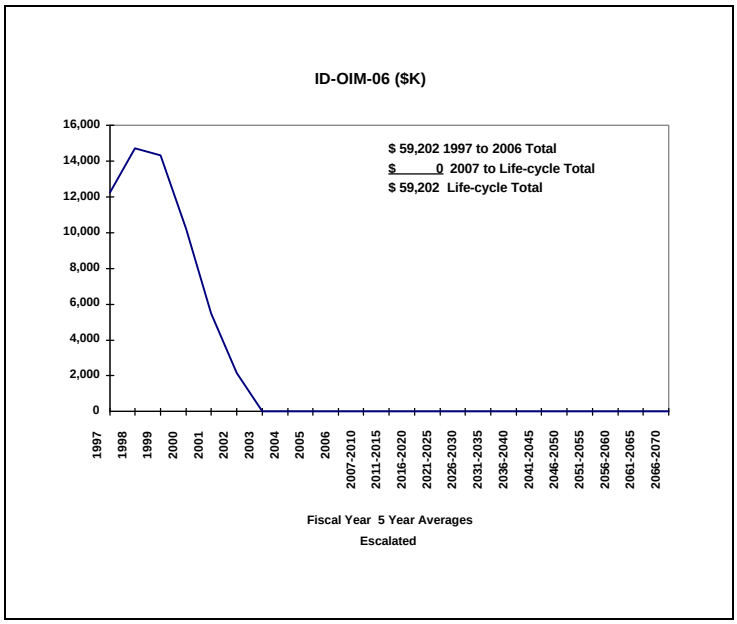

Figure 59. Electrical and Utility System Upgrade Life-cycle Cost

2006 End State—In service—This project will be constructed and fully operational by 2006.

Final End State—Corrected high risk life-safety and health deficiencies at the Idaho Chemical Processing Plant.

Cost—Project cost estimates are developed at each phase of the project per the INEEL Cost Estimating Guide. Cost baselines will be reviewed in the respective design reports to ensure that the project is designed to cost. The estimates for each project phase will reflect the current cost baselines. Figure 59 shows the life-cycle costs for the Electrical and Utility System Upgrade Project.

Major Milestones—

April 1997	Start Construction.
January 2001	Complete Construction - Electrical Power Distribution.
December 2001	Complete Construction - Standby Power System.
December 2001	Complete Construction - Facility Electrical/Priority #2 Panels.
December 2002	Project Closeout.

3.8.7 Electrical Distribution Upgrade (ID-OIM-07)

Mission—The INEEL Electrical Distribution Upgrade is a FY-1996 Line-Item Construction Project that is currently in the first of three phases of construction. Final closeout completion is scheduled for March 1999. This project will correct code compliance and national standard safety deficiencies along with age-related problems associated with safety. Additionally, correction of deficiencies in the electrical distribution system will result in compliance with all applicable regulatory requirements and laws including DOE Orders.

Scope—This project will upgrade portions of the electrical distribution system which supply electrical power to numerous users at the INEEL. It is necessary that the system changes be made so that existing codes and standards can be adhered to and a high level of safety, reliability, and cost effective maintainability can be sustained. The scope will include but is not limited to such occurrences as conductor deterioration, conductor termination, electrical line clearance and sag, pole and pole hardware general condition, transformer condition, transformer hardware and grounding condition, general electrical grounding,

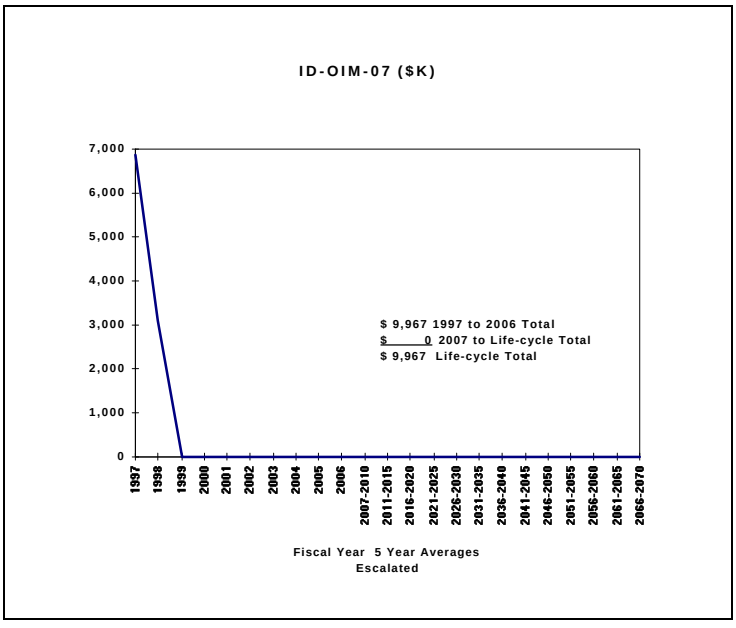

Figure 60. Electrical Distribution Upgrade Life-cycle Cost

transformer pad and electrical duct deterioration, substation interior and fencing requirements, minimum required protective relaying, fusing and circuit breaker protection, and any other unsafe, worn out, or insufficient condition found whether governed by a code requirement or not.

2006 End State—The INEEL Electrical Distribution Upgrade project will be completed and fully operational as of September 1999.

Final End State—This project will correct code compliance and national standard safety deficiencies along with age-related problems associated with safety.

Cost—The costs are based upon activity based costs and standard industry accepted estimating basis. Project Cost estimates are developed at each phase of the project per the INEEL Cost Estimating Guide. Figure 60 shows the life-cycle costs for the Electrical Distribution Upgrade Project.

Major Milestones—

July 1997	Complete Title Design (Phase II).
September 1997	Complete Construction (Phase I).
July 1998	Complete Title Design (Phase III).
September 1998	Complete Construction (Phase II).
March 1999	Complete Construction (Phase III).

3.8.8 INEEL Road Rehabilitation (ID-OIM-08)

Mission—The INEEL Road Rehabilitation project is a FY-1998 Line-Item Construction Project, which is necessary as a safety & health project to provide safe transportation for waste movements. It is necessary for DOE's mission to provide safe and environmentally compliant transportation for waste shipments in support of the Idaho Settlement Agreement and transportation of soil borrow to meet various INEEL regulatory and compliance issues under CERCLA, RCRA, and other authorities. The project directly supports the site-wide specific planning goal of providing roads which meet the State of Idaho Highway Construction Specifications, the American Association of State Highway

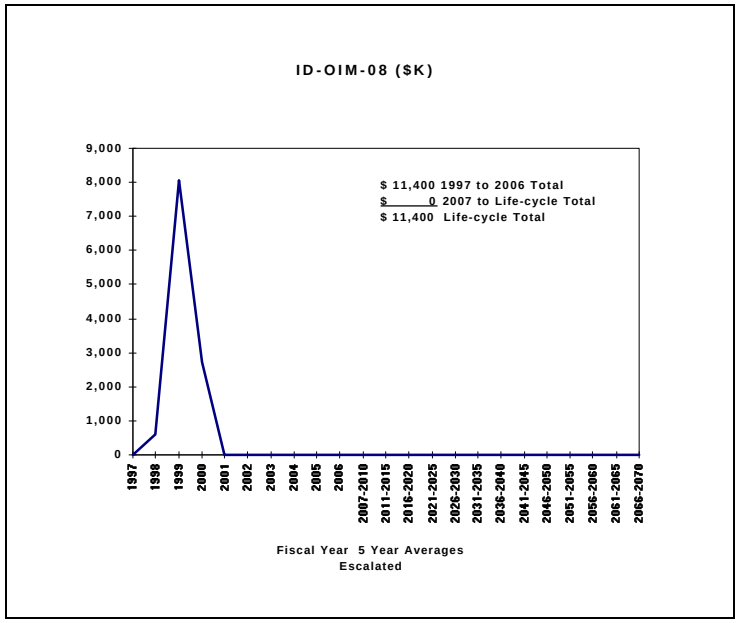

Figure 61. Road Rehabilitation Life-cycle Cost

and Transportation Officials requirements, Department of Transportation standards for shipping waste, and the INEEL architectural Engineering Standards.

Scope—This project provides for the design, procurement, and rehabilitation of approximately 45 miles of badly deteriorated existing paved roadways and approximately 27,000 square yards of deteriorated parking areas within the INEEL. The rehabilitation actions include the redesign of intersections, widening of roadways, modification of drainage patterns, resloping of shoulders, and reconstruction and renovation of existing roadways and parking lots.

2006 End State—Project is scheduled to be complete the 3rd quarter FY-2001 and will provide a fully compliant roadway system for the areas included in this project.

Final End State—This project is scheduled to be complete the third quarter FY-2001. Annual road maintenance will be completed under the direction of site-wide operations.

Cost—The costs are based upon activity based costs and standard industry accepted estimating basis. Project Cost estimates are developed at each phase of the project per the INEEL Cost Estimating Guide. Figure 61 shows the life-cycle cost associated with the Road Rehabilitation Project.

Major Milestones—

March 1999	Complete Title Design.
March 2001	Complete Project Closeout.
June 2001	Cost Closing.
October 2001	Complete Construction.

3.8.9 Pre-2006 Surplus Facilities Deactivation Projects (ID-OIM-09)

Mission—This project defines the deactivation activities for the time period from FY-1997 through FY 2006. The deactivation of surplus contaminated facilities which fall in this ten-year period include fuel reprocessing facilities at the Idaho Chemical Processing Plant, and reactor buildings at Power Burst Facility and Test Reactor Area. Several facilities which are to be deactivated contain RCRA Permitted units which must be closed to meet Federal and State regulations.

Scope—Deactivation of these surplus facilities is included in the ten-year window (FY-1997 through FY-2006). Deactivation has started on CPP-633 and the removal of fissile material from the ROVER cells and equipment is underway. Deactivation is in early design for CPP-601, CPP-640, CPP-627, and the CPP-603 basins. These subprojects are expected to closely follow the closure design used in the CPP-633 subproject. The facility contents will be immobilized in place, the superstructure will be torn down and immobilized in place, and a cap installed. CERCLA based risk assessments will be used to establish the design requirements; therefore, the hand-off to CERCLA following closure will meet CERCLA evaluation requirements.

2006 End State—This project will be complete at the end of FY-2006. The following facilities will have been deactivated by that time: CPP-601, ROVER, CPP-633, CPP-603 (basins), CPP-627, CPP-640, CPP-621, Power Burst Facility canal and reactor buildings, Advanced Reactivity Management Facility/Coupled Fast Reactivity Measurement Facility canal and reactor building, and the Materials Test Reactor Fuel Storage Canal.

Final End State—This project will be completed at the end of FY-2006.

Cost—The cost estimate is based on Activity-Based Cost Estimating. The costs above the 6 billion dollar budget line are at a lower level of confidence and are based upon past deactivation project costs. Figure 62 shows the life-cycle costs for the Surplus Facilities Deactivation Project. There are no costs assigned to the waste generated as the waste transportation and disposal costs at the INEEL are covered under a separate project baseline summary, and the assumption is that this will continue. Costs associated with the non-defense related fuel consolidation subproject are for fuel movement out of the Power Burst Facility, and Test Reactor Area facilities. All other deactivation activities are associated with Defense related projects.

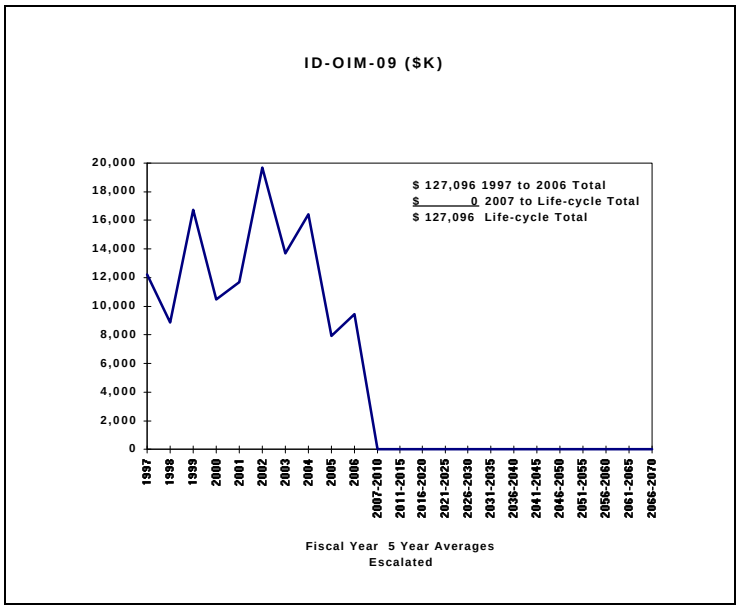

Figure 62. Surplus Facilities Deactivation Project Life-cycle Cost

Major Milestones—

September 1997	Complete Fuel Removal from Advanced Reactivity Management Facility/Coupled Fast Reactivity Measurement Facility.
September 1998	Complete ROVER Fuel Removal Subproject.
September 1998	Complete Waste Calcine Facility RCRA Closure Subproject.
September 1999	Complete Fuel Removal from Materials Test Reactor Canal.
September 2002	Complete CPP-603 Deactivation.
September 2003	Complete deactivation of the Power Burst Facility
September 2004	Complete CPP-601 Deactivation.

3.8.10 Post-2006 Surplus Facilities Deactivation Projects (ID-OIM-10)

Mission—The purpose of deactivation is to reduce the cost and risk associated with surplus contaminated facilities. Deactivation activities include removal of radioactive and hazardous materials, removal of uranium and other fissile materials, and isolation of the surplus facilities from ongoing operating and utility systems. This project includes work at contaminated facilities which no longer have a mission and have been declared surplus.

Within the time frame FY-2007 through FY-2050, it is not expected that any facilities at the INEEL, except the designated storage areas at Idaho Chemical Processing Plant will contain any nuclear fuel which would require fuel consolidation deactivation activities to meet compliance agreements. There are, however a number of facilities which are on the INEEL RCRA permit which will have to be RCRA closed thus falling in to the C driver category.

Scope—This PBS identifies the scope of work for deactivation of surplus facilities in the time frame of FY-2007 to FY-2040 that are still in operation and an end date is assumed, are planned but have not been built yet and an end date is assumed, and have not been designed yet but are assumed will be built to meet compliance agreements and an end date is assumed. A total of 44 facilities have been identified as needing deactivation or potentially needing deactivation. The general scope definition is to remove radiological and hazardous materials, remove any fissile materials remaining in the facility, and isolate the facility from on going operations.

2006 End State—Deactivation subprojects within this project will not start prior to FY-2007.

Final End State—There are 44 facilities identified for deactivation in the years from FY-2007 until FY-2050. At that time the assumption is that all of the facilities in Environmental Management that support the cleanup of the INEEL will have been surplused and deactivated. As programs are phased out in the reactor, high-level waste, and the nuclear fuels handling areas, resulting in facilities being added to the surplus facilities list, these facilities will be placed in the INEEL Deactivation Program.

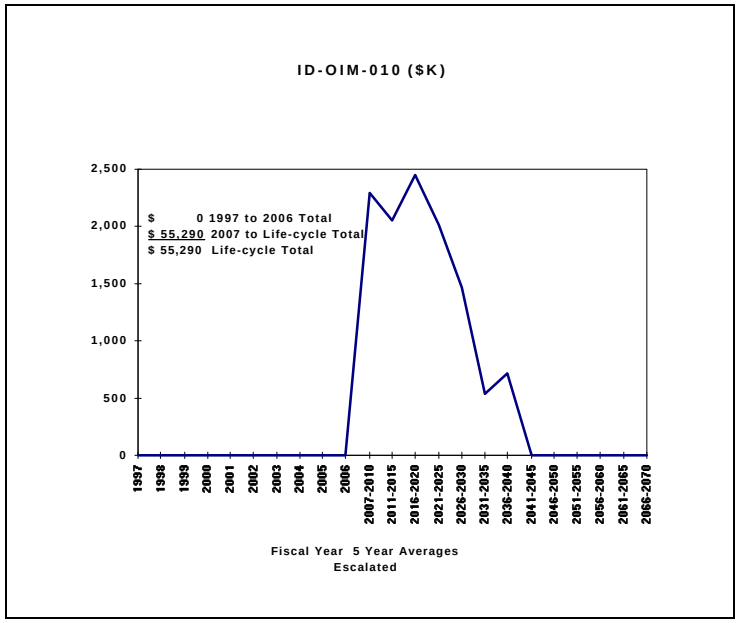

Figure 63. Post 2006 Surplus Facility Deactivation Projects Life-cycle Cost

Cost—Because the initial activity does not start until FY-2007 and extends over the next 43 years, the costs and schedule for the deactivation activities identified in

this PBS are at a lower level of confidence and are based upon the costs for deactivation of CPP-633 which has a final design and independent cost estimates. Each subproject has its cost estimation based upon the level of complexity of the facility, the type of contamination (transuranic, mixed, radioactive, hazardous), the levels of contamination expected, the design of the facility, and if there is any fissile material expected. The list of facilities comes from the INEEL Surplus Facilities List, with assumptions made for facility end of life dates.

Waste generation has been projected using the same basis which was used for the cost and schedule projections. However, there are no costs assigned to the waste generated as the waste transportation and disposal costs at the INEEL are covered under a separate Project Baseline Summary, and the assumption is that this will continue. Figure 63 shows the life-cycle costs for the Post 2006 Surplus Facility Deactivation Project.

Major Milestones—

October 2006	Start Post 2006 deactivation.
September 2050	Complete Post 2006 deactivation.

3.8.11 Pre-Deactivation Surveillance and Maintenance (ID-OIM-11)

Mission—The purpose of surveillance and maintenance is to maintain surplus contaminated facilities in a safe condition. Surveillance and maintenance activities maintain facilities in a condition that meets requirements for reduced risk from release of radiological and hazardous materials to the public, site personnel, and the environment. This is accomplished by maintaining facility and site high-efficiency particulate air filtered off-gas systems, cleaning up and containing contamination creep, preventing and cleaning up inflow of environmental liquids, and maintenance of the equipment necessary to accomplish this task. This program also maintains criticality controls in areas that have significant quantities of high-enriched fissile materials by preventing inflow of environmental liquids, and maintenance of instrumentation required to meet Criticality Safety Requirements. Pre-deactivation surveillance and maintenance is initiated immediately following facility shutdown and continues while waiting for the facility to be deactivated. Pre-deactivation surveillance and maintenance activities maintain shutdown nuclear facilities in a safe condition awaiting deactivation.

Scope—Surveillance and maintenance is performed on the following surplus facilities:

- CPP-601. This facility contains process cells contaminated with radioactive and mixed hazardous materials along with the low-level liquid waste storage, sampling and transfer system and chemical transfer system. The facility has permitted RCRA storage tanks which must be monitored.

- CPP-640. This facility has significant quantities of fissile material that require continual monitoring for criticality safety along with RCRA permitted low-level liquid waste storage tanks.

- CPP-633. This facility has significant quantities of radioactive waste with radiation fields above 100R/hr. There are multiple permitted RCRA storage tanks and a waste pile located in this building.

- CPP-627. The Hot Chemistry Lab has multiple cells which are contaminated and contain fissile material.

- CPP-603 Basins. 1.5 million gallons of contaminated waste and sludge in unlined pools with no controls.

- Power Burst Facility Reactor Buildings. The Power Burst Facility canal contains fuel elements from the Power Burst Facility reactor and 37,000 gallons of contaminated water.

- Advanced Reactivity Management Facility/Coupled Fast Reactivity Measurement Facility Reactor Buildings. The fuel is stored in a liquid filled canal storage area containing 30,000 gallons of contaminated water.

- Materials Test Reactor Canal. Used reactor fuel is stored in a liquid filled canal-storage area containing 120,000 gallons of contaminated water.

2006 End State—Deactivation will be completed and surveillance and maintenance activities will no longer be required in the following facilities by the end of FY-2006:

- CPP-601, CPP-633, CPP-603 (basins), CPP-627, CPP-625, CPP-640, CPP-621/1644, Power Burst Facility Reactor Buildings, Advanced Reactivity Management Facility/Coupled Fast Reactivity Measurement Facility Reactor Building, Materials Test Reactor Fuel Storage Canal

Final End State—As programs are phased out in the high-level waste area and the nuclear fuels handling areas resulting in facilities being added to the surplus facilities list, these facilities will be added to this project. In addition, surplus facilities are expected from reactor facilities at Power Burst Facility, buildings at Test Area North, and those remaining in the Environmental Management program at Test Reactor Area.

Cost—Costs associated with surveillance and maintenance at the Non-Defense related fuel consolidation subprojects are for fuel movement out of the Power Burst Facility and Test

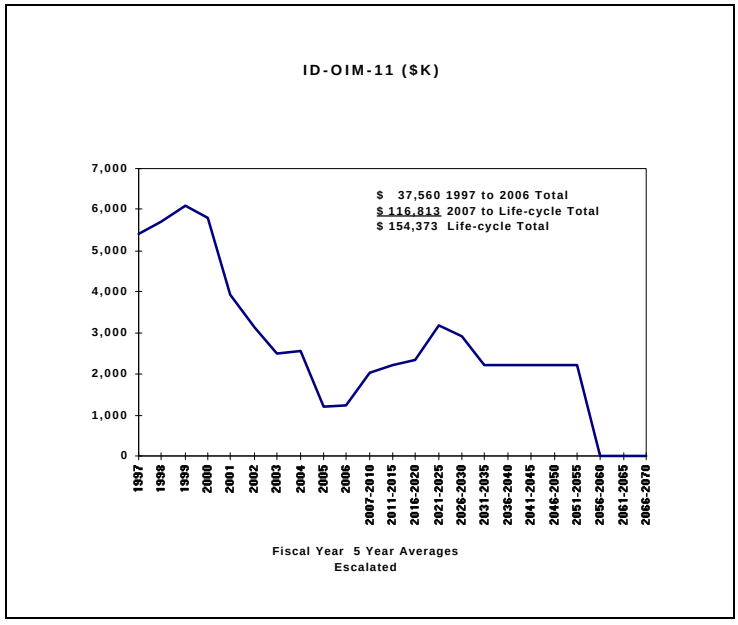

Figure 64. Pre-deactivation Surveillance and Maintenance Life-cycle Cost

Reactor Area facilities. All other surveillance and maintenance activities are Defense related. Figure 64 shows the life-cycle costs for Pre-deactivation Surveillance and Maintenance.

No contingency was used. The level of detail for this project baseline summary for the activities from FY-2001 through FY-2006 has been verified. Beyond FY-2007 and extending over the next 43 years, the costs and schedule for the deactivation activities identified are at a lower level of confidence and are based upon the assumption that the facilities will have been stabilized, isolated, and cleaned to reduce both risk and cost. Each subproject has its cost estimation based upon the level of complexity of the facility, the type of contamination, the levels of contamination expected, the design of the facility, and if there is any fissile material expected. The list of facilities comes from the INEEL Surplus Facilities List, with assumptions made for facility end of life dates.

Major Milestones—

October 1996	Start Pre-Deactivation Surveillance and Maintenance Project.
September 2055	Complete Pre-Deactivation Surveillance and Maintenance Project.

3.8.12 Post Deactivation Monitoring (ID-OIM-12)

Mission—The purpose of surveillance and maintenance is to maintain surplus contaminated facilities in a safe condition. This project meets the obligation to maintain the facilities in a condition that reduces the risk of release of hazardous and/or radioactive materials which could harm the public, site personnel, or the environment.

Post-Deactivation Surveillance and Maintenance is initiated immediately following facility deactivation and continues while waiting for the facility to be decommissioned. This follows deactivation of the facilities, which will have been placed in a low-cost, low-risk state requiring a minimum of surveillance and maintenance activity, Post-Deactivation Surveillance and Maintenance is initiated and continues until Decontamination and Decommissioning (ID-ER-10) starts.

Scope—Post-deactivation surveillance and maintenance includes daily surveillance of transition and restoration facilities for leak detection and response, daily surveillance of facilities for ventilation control, monthly surveillance of facilities for operability of safety equipment necessary for routine occupancy, and operational and maintenance response to any abnormalities.

The only post-deactivation surveillance and maintenance required through FY-2006 will be for the Power Burst Facility following deactivation. From FY-2007 through FY-2050 there will be 44 facilities undergoing deactivation which will require post-deactivation surveillance and maintenance.

2006 End State—Three Power Burst Facilities are the only facilities requiring post-deactivation surveillance and maintenance prior to FY-2007. In FY-2006 these facilities are still expected to require surveillance and maintenance to maintain them in a safe condition while awaiting decommissioning.

Final End State—There are 44 facilities identified for post-deactivation surveillance and maintenance. At that time the assumption is that the facilities in Environmental Management that support the cleanup of the INEEL will have been surplused and deactivated. As programs are phased out in the reactor, high-level waste, and the nuclear fuels handling areas and facilities will be added to the surplus facilities list, these facilities will be placed in the INEEL Deactivation Program, deactivated, and will require some level of Post-Deactivation Surveillance and Maintenance.

Cost—No contingency was used and escalation of 2.7 percent is applied from FY-1999 through FY-2055. The level of detail for activities from FY-2001 through FY-2006 has been verified. Beyond FY-2007 and extending over the next 43 years, the costs and schedule for the deactivation activities identified are at a lower level of confidence and are based upon the assumption that the facilities will have been stabilized, isolated, and cleaned to reduce both risk and cost. Each subproject has its cost estimation based upon the level of complexity of the facility, the type of contamination, the levels of contamination expected, the design of the facility, and if there is any fissile material expected. The list of facilities comes from the INEEL Surplus Facilities List, with assumptions made for facility end of life dates. Figure 65 shows the life-cycle costs for Post-deactivation Surveillance and Maintenance.

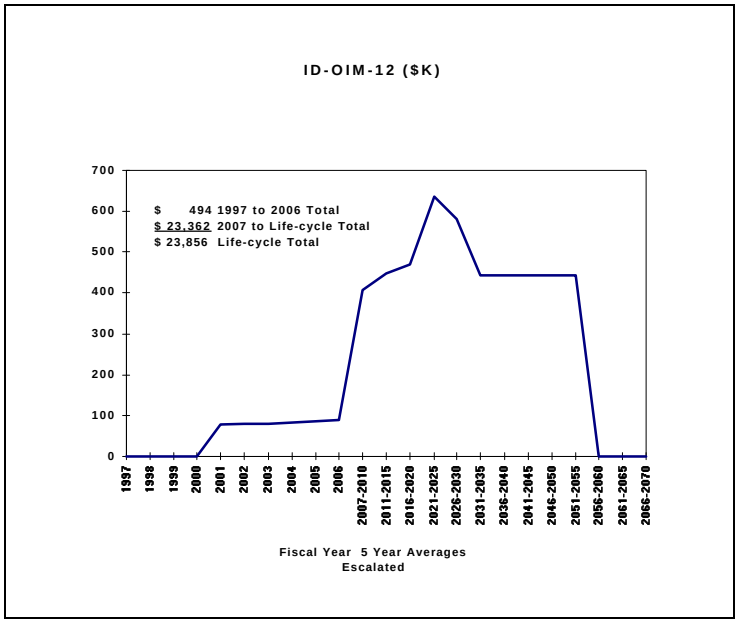

Figure 65. Post-deactivation Surveillance and Maintenance Life-cycle Cost

Major Milestones—

October 2001	Start Post-Deactivation Surveillance and Maintenance Project.
September 2055	Complete Post-Deactivation Surveillance and Maintenance Project.

3.8.13 Power Burst Facility Deactivation (ID-OIM-13)

Mission—The Power Burst Facility is a shutdown test reactor that has been in a standby condition for several years. The precursor to this project is to transfer the fuel from the reactor and the adjoining service pool to the Idaho Chemical Processing Plant for storage. The privatization project will take the Power Burst Facility from its shutdown and defueled condition to an end-point ready for D&D of the facility and surrounding area.

Power Burst Facility Deactivation Privatization will fund a contractor to deactivate the Power Burst Facility reactor building, contaminated tanks, secondary side water systems, cooling tower and basin, and dispose of the contaminated primary and secondary system water. The facilities are to have the remaining contamination stabilized for long-term (10 year) surveillance and maintenance period. The deactivation activities will have placed these facilities in a low cost, low risk state.

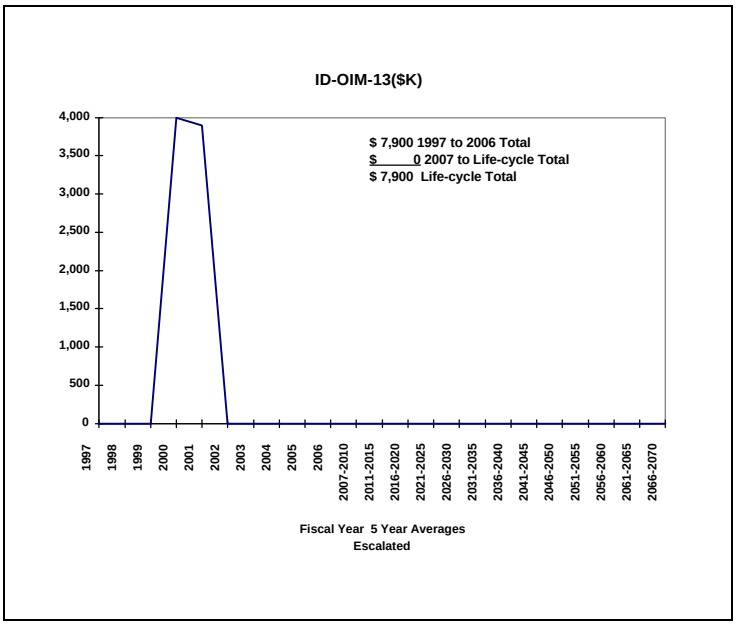

Figure 66. Power Burst Facility Deactivation Life-cycle Cost

Scope—This activity is to receive funding in FY-1999. Fuel removal from Power Burst Facility is expected to complete in FY-2002 at which time the new contractor will commence deactivation activities.

2006 End State—Unknown

Final End State—Unknown

Cost—Figure 66 shows the associated life-cycle cost of the Power Burst Facility Deactivation Project.

Major Milestones—None

3.9 National Programs

3.9.1 DOE-ID Program Direction (ID-PD-01)

Mission—This project provides funding for federal employee's salaries, benefits, travel, training, and contractual services. Technical scope includes responsibility for buried waste, remediation programs, and compliance activities supporting FFA/CO, CERCLA, and RCRA requirements. Technical scope also includes responsibilities for the spent nuclear fuel program and transportation, treatment, storage, and disposal of hazardous materials, deactivation of nuclear facilities, surveillance and maintenance of facilities, landlord infrastructure planning and management, oversight of site services (including safeguards and security), and project management systems. This project also provides funding for the operation of a federal radiological/analytical laboratory providing technical support and measurement quality assistance traceable to the National Institute of Standards and Technology for Assurance of Environmental Management Analytical Programs.

To adequately administer the above programs, administrative staff are provided by funding from the Field Operations account. ID Program Direction costs typically run 4 percent to 5 percent of the total INEEL request for years 1997 to 2006. The planning for years beyond 2006 will represent this same percentage of the total INEEL Environmental Management request.

3.9.2 Science and Technology Coordination (ID TD-01)

Mission—A key component of the INEEL Discussion Draft is the development and qualifying of technologies which can fill the many technology gaps required to meet the cleanup commitments. This project baseline summary focuses on ensuring those needs are clearly identified and filled. The INEEL needs have been developed by working closely with each of the project managers to ensure that there are clear and detailed definitions. The INEEL will work to establish technological solutions to these needs. This will include developing solutions at the INEEL and other national laboratories through the focus areas and crosscutting programs. In addition, the INEEL will ensure development activities align with the Long-Range Business Plans supporting the strategic mission by providing the basis from which the INEEL can diversify its funding base in support of the Long-Range Plan.

Management of the technology development projects at the INEEL will be accomplished through commitment from both the development organizations and Operations. This project will focus on three main efforts:

1. Focused needs. Technology Gaps (needs) are tied directly to Environmental Management operations projects and worked closely with technology development management to ensure requirements are well defined and understood.

2. Direct Implementation. The Discussion Draft will serve as the basis from which specific technology development will be developed. Development activities are defined within the Environmental Management project schedules, and technology development management will be accountable to meet these schedules once a project consensus is reached.

3. Complex Wide Application. Though projects will be focused directly at INEEL problems, they will also consider application to complex wide problems. The INEEL focus will ensure implementation, while the complex wide vision will ensure DOE obtains the most for its research money.

Close coordination and monitoring of technology development activities are being conducted off-site to meet INEEL needs. In addition to technology development's role in filling operations development needs, technology development serves as the base from which the INEEL will cultivate a sustainable future. Through the INEEL Long-Range Plan technology development fosters intellectual property and technical expertise used to establish new customers, initiate spin-off companies, and increase industrial competitiveness while bringing revenues back into the INEEL through licenses. While technology development is primarily focused on directly solving INEEL's needs, broader applications, both DOE complex and national must be included. Long term high-risk research and development initiated from conception through demonstration provides numerous benefits. The process develops a core of technical expertise to support the development activities. This in itself provides a basis from which future projects can be developed. In addition the innovation process develops intellectual property (patents, copyrights, know-how, etc) that can be licensed to bring royalties back into the INEEL and provides the basis for diversification of the local economy.

Development activities in support of the remaining INEEL Environmental Management projects will be focused on solving near-term problems and will be covered under each of the specific projects. Longer term special science needs will need to be addressed.

3.10 Long-Range Plan

3.10.1 Environmental Engineering and Science Center Project (ID-LRP-01)

Mission—During the cold war the DOE's Nuclear Weapons Complex, including INEEL facilities, was designed, built, and operated as separate unintegrated facilities. This lack of an integrated systems-based approach has created the current INEEL legacy waste and safety problems (taken from the Defense Nuclear Facilities Safety Boards' 1994 Annual Report). In addition, the lack of a systems approach to waste cleanup has lead to the stovepiping of technical solutions along funding lines. In 1995 the INEEL used a systems-based approach to integrate all INEEL Environmental Management activities. This effort is reflected in the current technical baseline.

The purpose of the Environmental Engineering and Science Center is to provide the facility and networking infrastructure needed to maintain the technical integration of the current environmental cleanup activities at the INEEL site, resolve key public technical issues that threaten the completion of DOE and State of Idaho cleanup milestones, verify the performance claims of critical cleanup technologies, accelerate the deployment of proven technology solutions into the INEEL cleanup efforts, reduce the current INEEL and DOE embedded mortgage costs, lead and partner with other DOE sites in the expansion of the systems-based Environmental Stewardship methodology and leverage Environmental Management technology investments to industry and to other DOE sites.

The purpose of the Environmental Engineering and Science Center from the INEEL Long Range Plan perspective is to expand the systems-based Environmental Stewardship Initiative of the INEEL Long-Range Plan.

The Environmental Engineering and Science Center and the Technology Development Center (discussed below) will provide the infrastructure required to leverage the Environmental Management investment in technology development and cleanup and transform the INEEL from site cleanup to a National Environmental Laboratory deploying systems-based environmental stewardship technologies.

3.10.2 Technology Deployment Center Demonstration Facility (ID-LRP-02)

Mission—The Technology Deployment Center Demonstration Facility supports the INEEL's role in validating and verifying technology technical bases for the safe and efficient treatment of radioactive and hazardous contaminated wastes within the Department of Energy System, and complements INEEL's recent role in validating environmental management treatment technologies. This project will provide the infrastructure and capability to perform bench, engineering, and pilot scale treatment tests on mixed radioactive and hazardous wastes. Test facility infrastructure will include validation capability for process

operations within normal operating design envelopes, and also provide the capability to safely predict the test results from events or processing conditions outside of normal design operations.

The Technology Deployment Center Demonstration Facility directly supports current primary environmental management missions by providing needed infrastructure and capabilities. DOE will own this facility when the Environmental Management Mission is complete and a user fee will be collected during the years of operation to support decontamination and decommissioning. No other project will be required to meet the project end state; however, this project may be required to meet the end state of other projects. Examples include the Advanced Mixed Waste Treatment Facility Project, the INEEL Subsurface Disposal Area, and the INEEL Idaho Chemical Processing Plant Tanks.

GLOSSARY

Agreement-in-Principle. An agreement between the Department of Energy and a state that describes commitments by the Department to fund certain activities, generally environmental oversight, monitoring, site access, and emergency response initiatives, performed by the state at a facility.

Baseline. A quantitative expression of planned costs, schedule, and technical requirements for a defined project. Baselines should include criteria to serve as a standard for measuring the status of resources and the progress of a project.

Baseline Environmental Management Report (Baseline Report). Congressionally mandated report prepared by the Secretary of Energy to estimate the cost and schedule of cleaning up the nation's nuclear weapons complex.

Characterization. Sampling, monitoring, and analysis activities to determine the extent and nature of contamination at a facility or site. Characterization provides the necessary technical information to develop, screen analyze, and select appropriate cleanup techniques.

Compliance Agreement. Legally binding agreement between regulators and regulated entities that sets standards and schedules for compliance with environmental statutes.

Compliance Reengineering. Complete, comprehensive analysis of the way Environmental Management processes work and reengineer them to get the most value for the money without compromising our commitment to workers' safety health or full environmental compliance.

Comprehensive Environmental Response, Compensation, and Liability Act. A federal law enacted in 1980 that governs the cleanup of hazardous, toxic, and radioactive substances. The Act and its amendments created a trust fund, commonly known as Superfund, to finance the investigation and cleanup of abandoned and uncontrolled hazardous waste sites. This act is also commonly referred to by its acronym, CERCLA.

Consent Order. A legally binding document that delineates actions previously agreed upon by the parties in a litigation. In the case of the Department of Energy, a Consent Order outlines planned Department actions to remediate environmental problems in return for the other party's consent to cease litigation.

Department of Energy. The cabinet-level U.S. Government agency responsible for nuclear weapons production and energy research and the cleanup of hazardous and radioactive waste at its sites. It was created from the Energy Research and Development Administration and other Federal Government function in 1977.

Dual Path. The continued calcination of high-level waste and sodium-bearing liquid waste and the Technology Development of the separations treatment required to complete the final treatment of the high-level waste (calcine).

Dual Purpose Canister. A storage canister certified by the Nuclear Regulatory Commission for both storage and shipment of Spent Nuclear Fuel.

End State. The physical state of a site after it has been treated or remediated.

Encapsulation. A process whereby waste is placed and sealed in casks, cans, or other containers to prevent the material from moving through the environment.

Environmental Impact Statement. A report that documents the information required to evaluate the environmental impact of a project. It informs decision makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the environment.

Environmental Management Program. An Office of the Department of Energy that was created in 1989 to oversee the Department's waste management and environmental cleanup efforts. Originally called the Office of Environmental Restoration and Waste Management, it was renamed in 1993.

Environmental Protection Agency. A federal agency established in 1970 to enforce environmental laws, including the Resource Conservation and Recovery Act; the Comprehensive Environmental Response, Compensation, and Liability Act; and the Toxic Substances Control Act.

Environmental Restoration. Although usually described as "cleanup," this function encompasses a wide range of activities, such as stabilizing contaminated soil; treating ground water; decommissioning process buildings, nuclear reactors, chemical separations plants, and many other facilities; and exhuming sludge and buried drums of waste.

Feasibility Study. An analysis of the practicality of a proposal such as a description and analysis of the potential cleanup alternatives for a site. The Feasibility Study emphasized data analysis and usually recommends selecting a cost-effective alternative. It is usually performed with and uses data from a Remedial Investigation; together, they are commonly referred to as a Remedial Investigation/Feasibility Study.

Federal Facility Agreement. A type of compliance agreement stemming from section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act, which required written agreement for compliance activities among the Department, the state, and the Environmental Protection Agency.

Federal Facility Compliance Act. A federal act that requires the Department of Energy to develop and submit to states or the U.S. Environmental Protection Agency plans for developing mixed waste treatment capacity and technologies.

Fiscal Year. A 12-month period for which an organization plans the use of its funds. In the Federal Government this period extends from October 1 through September 30 of the following calendar year. Fiscal year is commonly written "FY".

Fissile Material. A specific set of nuclear materials, such as uranium-235 and plutonium-239, that may be used in making a nuclear explosive for a weapon. It does not include fissile materials present in spent nuclear fuel or irradiating targets from reactors.

Full-Time Equivalent. Equal to one work year, or 2,080 non overtime hours. For example, two employees who work half-time count as one Full-Time Equivalent.

Geological Repository. A mined facility for disposal of radioactive waste that uses waste packages and the natural geology as barriers to provide waste isolation.

Greater-Than-Class C. Low-level waste disposal criteria specified by the Nuclear Regulatory Commission based on concentration of radio nuclides (Classes A, B, and C) that exceed the low-level waste limits for Class C and that are used to designate the waste as generally unacceptable for near-surface disposal.

Heel. That portion of substance left in a liquid storage tank after all easily removable substances have been removed.

High-Level Waste. The highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid waste derived from the liquid that contains a combination of transuranic waste and fission products in concentrations requiring permanent isolation.

Land Use. The ultimate uses to be permitted for currently contaminated lands, waters, and structures at each Department of Energy installation. Land-use decisions will strongly influence the cost of environmental management.

Landlord. Activities that involve the physical operation and maintenance of Department of Energy installations. Specific tasks vary but generally include providing utilities, maintenance, and general infrastructure for the entire installation.

Life-Cycle Cost Estimate. The cost to complete the mission of the Environmental Management program.

Low-Level Waste. Waste that contains radioactivity and is not classified as high-level waste, transuranic waste, or spent nuclear fuel. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentration of transuranic is less than 100 nCI/g. Included as low-level waste is alpha-emitting transuranic waste in concentrations equal to or less than 100 nCI/g. For the purposes of this guidance, Greater than Class C waste, Specific Performance Assessment Required waste, and Greater than Class C sealed sources are include in low-level waste.

MACT Rule. MACT Rule applies to hazardous waste incinerators, cement kilns, and light weight aggregate kilns and sets the emission standards for D/F, Hg, Sb, As, Be, Cr, HCl/Cl_2, CO, and HC. The

rules requires continuous emissions monitoring, tied in with operational performance controls and a feed shutoff. The EPA plans to issue the final MACT Rule in 1998.

Mixed Waste. Waste containing both radioactive and hazardous constituents.

National Environmental Policy Act. A federal law, enacted in 1970, that requires the Federal Government to consider the environmental impacts of, and alternatives to, major proposed actions in its decision making processes. It is commonly referred to by its acronym, NEPA.

National Priorities List. The Environmental Protection Agency's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The list is based primarily on the score a site receives from the Environmental Protection Agency Hazard Ranking System. The Environmental Protection Agency is required to update the National Priorities List at least once a year.

Operable Unit. Organizational unit used to cleanup a site. It may address geographical portions of a site, specific site problems, or initial phases of an action. It may also consists of any set of actions performed over time or any actions that are concurrent but located in different parts of a site.

Outyears. The budget years beyond the planning year. For the FY 1998 budget, the budget year is FY 1998, the planning is FY 1999, and the outyears are FY 2000 and beyond.

Plutonium. A manmade fissile element. Pure plutonium is a silvery metal that is heavier than lead. Material rich in the plutonium-239 isotope is preferred for manufacturing nuclear weapons, although any plutonium can be used. Plutonium-239 has a half-life of 24,000 years.

Privatization. An alternative Environmental Management business strategy to the traditional Management & Operating approach which involves the purchase of an end product or service obtained via an open fixed price competition. Under privatization, the contractor is responsible for completing and finishing the work to deliver the product/service. If facilities are involved, they are contractor-owned/contractor-operated and privately financed.

Program Direction. Activities that include salaries and benefits for all federal Full-Time Equivalents at Headquarters and the field offices.

Program Management. Activities that include planning, monitoring, and reporting of ongoing activities, cost-schedule tracking, clerical, other administrative support, and grants to states and localities.

Radioactive. Of, caused by, or exhibiting radioactivity.

Radioactivity. The spontaneous emission of radiation from the nucleus of an atom. Radio nuclide lose particles and energy through this process.

Radionuclide. A radioactive species of an atom. Tritium, strontium-90, and uranium-235 are radionuclide.

Record of Decision (ROD). A public document that explains the cleanup alternatives to be used at National Priorities List sites where, under the Comprehensive Environmental Response, Compensation, and Liability Act, trust funds pay for the cleanup.

Remedial Investigation. The Comprehensive Environmental Response, Compensation, and Liability Act process of gathering the data necessary to determine the nature and extent of contamination at a Comprehensive Environmental Response, Compensation, and Liability Act site, establishing criteria for cleaning up the site, identifying preliminary alternatives for remedial action, and supporting the technical and cost analysis of the alternatives. The Remedial Investigation is usually done together with the Feasibility Study. Together, they are usually referred to as the "Remedial Investigation/Feasibility Study."

Resource Conservation and Recovery Act (RCRA). A federal law enacted in 1976 to address the treatment, storage, and disposal of hazardous waste.

Site Characterization. An onsite investigation at a known or suspected contaminated waste or release site to determine the extent ad type(s) of contamination.

Spent Nuclear Fuel. All irradiated nuclear fuel that is discharged from Department of Energy production reactors, university and government research reactors, foreign research reactors with fuel of U.S. origin, and naval nuclear propulsion reactors.

Stakeholder. Anyone interested in, or affected by, Department of Energy activities. Stakeholders have varying levels of concern about the Environmental Management program and varying levels of expertise.

Superfund. A term commonly used to refer to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Surplus Facility Inventory Assessment. A two-year assessment, beginning in October 1993, that baselined the Department of Energy's surplus inventory and characterized those assets for transfer to the Environmental Management program.

Toxic Substances Control Act. A federal law enacted in 1976 to protect human health and the environment from unreasonable risk caused by manufacturing, distribution, use, disposal of, or exposure to, substances containing toxic chemicals.

Transuranic Waste. Waste material contaminated with uranium-233 and its daughter products, certain isotopes of plutonium, and nuclides with an atomic number greater that 92 (uranium); each with half-lives greater than 20 years and in concentrations of more than one ten-millionth of a curie per gram of waste. It is produced primarily by reprocessing spent fuel and by using plutonium to fabricate nuclear weapons.

Vitrification. The process by which waste is transformed from a liquid or sludge into an immobile solid that traps radio nuclides and prevents waste from contaminating soil, ground water, and surface water. The Department of Energy has selected vitrification processes to solidify and stabilize certain forms of radioactive and hazardous waste. This process does not reduce radioactivity. The Department of Energy will use borosilicate glass to immobilize its high-level radioactive waste.

Waste Isolation Pilot Plant. A geologic repository intended to provide permanent deep underground disposal for transuranic waste. If approved, the Waste Isolation Pilot Plant is expected to open in 1998.

Waste Management. Activities that include treating, storing, and disposing of high-level radioactive waste, transuranic waste, low-level radioactive waste, low-level mixed waste, hazardous chemical waste, and sanitary waste.

Work Area Grouping (WAG). A basic organizational unit of sites used to manage areas that are similarly contaminated.

Attachment A—Action Plans

The attached Action Plans are issues that have been identified to date specific to INEEL. Action Plans contain information about the background, planning assumptions, approach to resolution, a schedule of activities aimed at resolving the issue, who are the participants involved, what analysis or documentation is involved, and any stakeholder involvement opportunities.

Draft Action Plan

for

Spent Nuclear Fuel Stabilization

Date: February 20, 1997

Issue No.: 8.18

Source of Issue: Environmental Defense Institute Letter of September 17, 1996

Issue: INEEL Ten-Year Plan advocates unnecessary Spent Nuclear Fuel Stabilization Programs. Experimental Breeder Reactor-II Spent Nuclear Fuel can be stored safely in dry interim monitored storage facilities or in long-term repositories.

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Approved by DOE-Idaho Operations Office:

DOE-Idaho Program Manager	Jerry L. Lyle Assistant Manager Office of Program Execution

The proposed resolution is in accordance with the Ten-Year Plan Guidance dated December 20, 1996.

SPENT NUCLEAR FUEL STABILIZATION

Issue: 8.18

Issue Statement

INEEL Ten-Year Plan advocates unnecessary Spent Nuclear Fuel Stabilization Programs. Experimental Breeder Reactor-II Spent Nuclear Fuel can be stored safely in dry interim monitored storage facilities or in long-term repositories.

Planning Assumptions

The Department of Energy's goal is to remove spent nuclear fuel from the state of Idaho, and to safely and permanently dispose of the fuel in a geologic repository. In order to achieve this goal, fuel stabilization programs are required to develop technology for elimination of reactive hazards of some spent nuclear fuel prior to repository storage. The 10 CFR 60 regulations for storage of spent nuclear fuel in a repository require the elimination of all chemically reactive materials, explicitly those with potential for spontaneous ignition and generation of explosive gases. For example, Experimental Breeder Reactor-II fuels incorporate elemental sodium as a component of the fuel pins within the fuel cladding system. Sodium metal reacts violently when exposed to water, liberating hydrogen gas, and creating a potential explosion. The resulting reaction can likewise affect the uranium metal fuel, causing a second oxidation reaction. Sodium also introduces potential for caustic stress corrosion from sodium hydroxide derived from atmospheric moisture. Extensive corrosion is expected to result in a loss of geometric configuration. This change of configuration may increase the potential for a nuclear reaction.

Elimination of the elemental sodium removes the risk for inadvertent chemical and nuclear reactions. Electrometallurgical treatment provides for controlled removal of the sodium from the fuel matrix in a molten salt environment limiting the potential for combustion reaction while bonded to the uranium metal fuel components. At the same time, it limits the undesirable mobilization of fission products by sequestering them into a phase that can become a stable waste form. Isolation of the uranium metal introduces the option of conversion of the metal to oxide, which is the maximally stable chemical form. Discussion of alternative processes for achieving this stable state for the reactive components concluded that a closed system using molten salt achieves a desired high degree of stability.

Some means of removing the reactivity and stabilization issues are required prior to repository disposition. The environmental assessment for the Electrometallurgical Treatment and Demonstration Project noted that the spent nuclear fuel is subject to stress corrosion cracking once the sodium has been washed from the external surfaces of the fuel. This also causes an instability with the fuel which also creates problems with repository disposal. The Electrometallurgical Treatment Program is a demonstration intended to determine full scale process efficacy to resolve these issues.

Resolution Approach

The ongoing Electrometallurgical Treatment demonstration will ascertain the viability of the treatment method including resultant waste product disposal performance and special nuclear material safeguard approaches. If the demonstration is sucessful, further NEPA review, including public participation, will be

the primary approach to reach resolution of this issue. Communication with all interested and affected stakeholders will continue with the Ten-Year Plan process and the NEPA process.

Schedule

The demonstration is scheduled to be completed in the Summer or 1999. Further NEPA review will be performed upon its completion, if warranted. Communication with stakeholders will also continue through use of the Ten Year Plan, which will address this and similar issues on an on-going basis.

Participants

DOE-Idaho, Argonne National Laboratory-West, and Lockheed Martin Idaho Technologies Company spent nuclear fuel program managers or designated alternates.

Analysis/Documentation

The description of the fuel as noted in the Environmental Assessment of Electrometallurgical Treatment Research and Demonstration Project in the Fuel Conditioning Facility at Argonne National Laboratory-West (DOE/EA-1148-F) notes the presence of integral sodium metal within the fuel matrix. Options for controlled disassembly and reconfiguration of the fuel to eliminate the chemically reactive components have been discussed, and supporting analysis for the selected options has been provided within that document.

Stakeholder Involvement

Commenting organization will be contacted to assure timely communication of the NEPA process.

Continue to prepare and distribute spent nuclear fuel information to the public and targeted interest groups, and occasionally prepare specific information concerning topics of public interest. For example, the brochure released by the Spent Nuclear Fuel Program to the public entitled, "*What's Happening with Spent Nuclear Fuel in Idaho?*" released in November 1996.

Continue to offer and provide briefings to the INEEL Site-Specific Advisory Board, the Shoshone-Bannock Tribes, and interest groups.

Draft Action Plan

for

Decontamination and Dismantlement Milestones

Date: February 20, 1997

Issue No.: 8.25

Source of Issue: Idaho Ten-Year Letter of October 3, 1996

Issue: Key Milestones. Key milestones for the decontamination and dismantlement of the Experimental Test Reactor and Materials Test Reactor at Waste Area Group 2, the Test Reactor Area, should be developed.

Points of Contact:

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Approved by DOE-Idaho Operations Office:

DOE-Idaho Program Manager	Jerry L. Lyle Assistant Manager Office of Program Execution

The proposed resolution is in accordance with the Ten-Year Plan Guidance dated December 20, 1996.

Decontamination and Dismantlement Milestones

Issue: 8.25

Issue Statement

Key Milestones. Key milestones for the decontamination and dismantlement of the Experimental Test Reactor and Materials Test Reactor at Waste Area Group 2, the Test Reactor Area, should be developed.

Clarification

The July 1996 draft INEEL Environmental Management Ten-Year Plan did reflect "Start" and "Complete D&D Milestones" as indicated on pages 74 and 75.

The Environmental Management Integration Program process utilized a Parametric Model that projected the Deactivation, Surveillance and Maintenance, and Decontamination and Dismantlement costs; Deactivation and Decontamination and Dismantlement waste streams; and Deactivation, Surveillance and Maintenance, and Decontamination and Dismantlement scheduled start/complete years for every known existing and future radiologically-contaminated facility at the INEEL. The 96 Baseline Environmental Management Report, which was verified and validated in 1996, contains these facilities dates that were generated to match funding profiles and facility availability.

The facilities in question, Experimental Test Reactor, Materials Test Reactor, and the Advanced Test Reactor are outlined in the following table.

Description	**Deactivation**		**Surveillance & Maintenance**		**Decontamination and Dismantlement**	
	Start	Complete	Start	Complete	Start	Complete
Experimental Test Reactor (TRA-642)	2004	2005	N/A	N/A	2004	2016
Materials Test Reactor (TRA-603)	2001	2003	2003	2022	2023	2031
Advanced Test Reactor (TRA-670)	2025	2029	N/A	N/A	2030	2044

Funding restraints on the Decontamination and Dismantlement Program didn't allow for the starting of Experimental Test Reactor on the scheduled 2004 to 2016 date. Therefore the 96 Baseline Environmental Management Report dates were not utilized in the development of the Environmental Management Ten-Year Plan. The decontamination and dismantlement of this reactor facility was moved to 2023 to 2031 to be worked in conjunction with the decontamination and dismantlement work at the Materials Test Reactor.

Special Note

This is a scheduling issue in the sense that the Ten-Year Plan window from 1996 to 2006 wasn't large enough to see the Experimental Test Reactor and Materials Test Reactor decontamination and dismantlement projects scheduled by the 96 Baseline Environmental Management Report. DOE-Headquarters funding levels change on an annual basis and as such the INEEL Ten-Year Plan will be revised to reflect site-wide Environmental Management prioritization of projects based upon compliance and risk issues. This means that the INEEL Environmental Restoration decontamination and dismantlement projects will be tied directly to funding levels established and may be accelerated and/or delayed accordingly.

Recommendation

Since the information in question already exists in the INEEL Ten-Year Plan, it is recommended that this issue be addressed editorially in the Plan. This action would close the issue of developing key milestones that already exist.

Draft Action Plan

for

Consolidation of Radionuclide—Contaminated Soil

Date: February 20, 1997

Issue No.: 8.26

Source of Issue: Idaho Ten-Year Plan Letter of October 3, 1996

Issue: The Ten-Year Plan action is to "incorporate a schedule for development and operation of a site-wide soil repository pursuant to CERCLA at the INEEL." This repository will be sited under a CERCLA Record of Decision only if on-site disposal proves to be the most appropriate alternative chosen in accordance with the nine CERCLA criteria by DOE-Idaho, EPA, state of Idaho, and the public. Schedule constraints dictate the consolidation of radionuclide-contaminated soil at an existing CERCLA site would not occur sooner than the 1999 field season, which may leave some radiologically-contaminated soil without this disposal option between 1997 and 1999.

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Approved by DOE-Idaho Operations Office:

DOE-Idaho Program Manager	Jerry L. Lyle Assistant Manager Office of Program Execution

The proposed resolution is in accordance with the Ten-Year Plan Guidance dated December 20, 1996.

Consolidation of Radionuclide-Contaminated Soil

Issue: 8.26

Issue Statement

The Ten-Year Plan action is to "incorporate a schedule for development and operation of a site-wide soil repository pursuant to CERCLA at the INEEL." This repository will be sited under a CERCLA Record of Decision only if on-site disposal proves to be the most appropriate alternative chosen in accordance with the nine CERCLA criteria by DOE-Idaho, EPA, state of Idaho, and the public. Schedule constraints dictate that consolidation of radionuclide-contaminated soil at an existing CERCLA site could not occur sooner than the 1999 field season, which may leave some radiologically-contaminated soil without this disposal option between 1997 and 1999.

Planning Assumptions

The INEEL expects to encounter large volumes of radiologically-contaminated soil and debris under CERCLA and Decontamination and Dismantlement programs, as well as through normal facility operations. The following assumptions were made to support the concept of an existing centralized CERCLA site where radionuclide-contaminated soil, generated by environmental restoration activities at the INEEL, could be consolidated.

- A variety of alternatives preventing the release of contaminants to the environment should be considered—including among others, capping in place, consolidation at a CERCLA site and capping, disposal at the Radioactive Waste Management Complex, and off-site disposal at a licensed facility. In situations where treatment may be necessary for some of these alternatives, some form of final disposal would be necessary since treatment alone doesn't protect human health and the environment from the radioactive constituents in contaminated soil. The INEEL has identified better characterization technologies and use of physical treatment methods that result in minimizing the generation of waste, and reducing the volumes of soil requiring disposal.

- The Federal Facility Agreement and Consent Order requires that a comprehensive remedial investigation/feasibility study be developed for each of the ten Waste Area Groups at the INEEL. Each investigation will evaluate alternatives to meet remedial action objectives. Compliance with Applicable or Relevant and Appropriate Requirements, as required by CERCLA, will be evaluated for each detailed alternative considered. If some form of on-site disposal is determined to be the best alternative for radionuclide-contaminated soil and debris, the determination would be summarized in a proposed plan and released for public comment. A Record of Decision would be issued detailing the resolution of pubic comments and documenting the reasons for selecting the remedy.

- The Waste Area Group 3 Comprehensive Remedial Investigation/Feasibility Study may demonstrate that an on-site disposal facility at the location of the percolation ponds at the Idaho Chemical Processing Plant is the preferred remedy for the approximately 45,000 cubic yards of radiologically-contaminated soil from Waste Area Group 3 for which an excavation and disposal option is appropriate. In addition, the Waste Area Group 3 Remedial Investigation/Feasibility Study will also include an analysis of the cost/benefit of a centralized disposal facility located at Waste Area Group 3 for a larger volume of soil,

including soil from other locations within the INEEL. The total volume of soil used in the cost/benefit analysis for the soil disposal facility would be 200,000 cubic yards, which includes soil expected to be generated as a result of decontamination and dismantlement activities in the next 10 years.

- The information generated in the Waste Area Group 3 Remedial Investigation/Feasibility Study will be provided to other Waste Area Groups for use in individual comprehensive investigations and Records of Decision that will determine the fate of CERCLA soils at other INEEL locations. There is no guarantee that these individual Records of Decision will choose disposal at a centralized soil disposal facility as the selected remedy, but, it is assumed this alternative could be the selected remedy.

- The Waste Area Group 3 Record of Decision will not become final until July 1998, resulting in the summer of 1999 as the earliest opening date of a disposal facility. Other solutions would be utilized for soil generated before the opening of the new centralized disposal facility. It is assumed other solutions would be available for these soils, such as disposal at the Radioactive Waste Management Complex, temporary storage, or off-site disposal.

- The end state for the centralized soil disposal facility would consist of the two Waste Area Group 3 percolation ponds filled to ground-level with radiologically-contaminated soil, with a multi-layer cap, including an infiltration barrier and an erosion resistant top layer. The disposal facility would be filled and capped no later than 2045, when decontamination and dismantlement of the Idaho Chemical Processing Plant is expected to be complete.

Several of the assumptions for the soil disposal facility involve some risk because there has yet to be any stakeholder acceptance of the concept of a centralized soil disposal facility. Chief among them is the assumption that the Records of Decision for soils from locations other than Waste Area Group 3 would select on-site disposal at a centralized disposal facility resulting in a minimum volume of 200,000 cubic yards of soil, including soil from Waste Area Group 3. There is also a risk that consolidation at a soil disposal facility may not prove to be the most cost-effective remedy for most INEEL radiologically-contaminated soil, although the risk is not considered high.

Resolution Approach

Most of the assumptions raise issues requiring resolution through the on-going CERCLA process in progress at the INEEL. The proposed plan and Record of Decision for Waste Area Group 3 and the other Waste Area Groups will reflect the resolutions agreed to by the DOE, EPA, and IDHW once stakeholder input has been evaluated and considered. Coordination between the Environmental Restoration Program and facility operations will occur in support of the Remedial Investigation/Feasibility Study to better define planning assumptions and remedial alternatives.

Schedule

- The draft Waste Area Group 3 Comprehensive Remedial Investigation/Feasibility Study will be submitted to EPA and IDHW for review on April 22, 1997. This date is well ahead of the enforceable deadline of September 30, 1997.

- The Waste Area Group 3 Remedial Investigation/Feasibility Study is expected to become final on August 18, 1997.

- The proposed plan will become final on October 27, 1997, with a public comment period from November 3, 1997 to January 21, 1998.

- The draft Record of Decision will be submitted to the EPA and IDHW on March 11, 1998 for review. This date is prior to the enforceable date of July 31, 1998.

- The Record of Decision will become final on July 8, 1998, at which time most of the resolutions to the above issues would be considered complete.

- The resolution of issues associated with the disposal of soil from other Waste Area Groups will be tied to the schedules for the finalization of each of the Waste Area Group-specific comprehensive Records of Decision.

Participants

The Environmental Restoration Program is implementing the Waste Area Group 3 Comprehensive Remedial Investigation/Feasibility Study, proposed plan, and Record of Decision. The DOE-Idaho decision-maker is Nolan Jensen. Key stakeholders include the EPA and IDHW as described above. Other DOE-Idaho and Lockheed Martin Idaho Technologies Company organizations will support the coordination activities for the Remedial Investigation/Feasibility Study, including facility staff and regulatory compliance staff.

Analysis/Documentation

The comprehensive Remedial Investigation/Feasibility Study, the proposed plan, and the Record of Decision will document the analysis of alternatives for Waste Area Group 3 soil remediation. The analysis will consider coordination with other Waste Area Groups for soil disposal at Waste Area Group 3. The comprehensive Remedial Investigations/Feasibility Studies, proposed plans, and Records of Decision for other Waste Area Groups will document the analysis of radiologically-contaminated soil within each individual Waste Area Group.

Stakeholder Involvement

Stakeholders will be involved through the normal CERCLA process. The EPA and IDHW will participate in the development of documents and strategies as provided for in the Federal Facility Agreement and Consent Order. The INEEL Site-Specific Advisory Board will be involved in discussions over the planning assumptions prior to finalization of any decisions. The public will have an opportunity to participate through public comment periods required by the INEEL Community Relations Plan.

Opportunities to brief interested parties will be solicited by DOE-Idaho. Additional contacts will be coordinated between DOE-Idaho and the Shoshone-Bannock Tribes. Technical briefings will be offered to the Tribal Council, the Tribe's technical staff and to Tribal members.

Articles concerning this topic will be covered in bimonthly issues of the *INEEL Reporter*, which is distributed to 6,800 readers.

Draft Action Plan

for

Idaho Chemical Processing Plant Facility Closure Integration

Date: February 17, 1997

Issue No.: 10.14

Source of Issue: Idaho Ten-Year Letter of October 3, 1996

Issue: ER Integration. Define the cleanup process, end state, and significant issues to completing restoration of Waste Area Group 3 (i.e., the Idaho Chemical Processing plant). It is not clear how restoration activities will be integrated with facility operations that continue beyond 2006.

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Approved by DOE-Idaho Operations Office:

DOE-Idaho Program Manager	Jerry L. Lyle Assistant Manager Office of Program Execution

The proposed resolution is in accordance with the Ten-Year Plan Guidance dated December 20, 1996.

Idaho Chemical Processing Plant
Facility Closure Integration

Issue: 10.14

Issue Statement

ER Integration. Define the cleanup process, end state, and significant issues to completing restoration of Waste Area Group 3 (i.e., The Idaho Chemical Processing Plant). It is not clear how restoration activities will be integrated with facility operations that continue beyond 2006.

Planning Assumptions

The cleanup of CERCLA sites at Waste Area Group 3 is governed by the INEEL Federal Facility Agreement and Consent Order, under which a Comprehensive Remedial Investigation/Feasibility Study for Waste Area Group 3 is in progress. The decision-making process for integration of environmental restoration cleanup and facility operations is tied to the CERCLA Record of Decision, which includes stakeholder participation. Until the Record of Decision is signed, the following assumptions have been used as a basis for planning.

Cleanup Process

The cleanup process will include remediation of sites at Waste Area Group 3 with unacceptable risk by 2005, with the cleanup of the tank farm and other inaccessible sites continuing beyond 2006. Cleanup of contaminated soil around the tank farm under CERCLA would likely be integrated with RCRA closure of the high-level waste tanks at the tank farm. A cap to prevent water infiltration and surface exposure to contaminants at the tank farm is currently assumed to be installed under the CERCLA program. Other contaminated soil sites would be remediated using an appropriate combination of institutional controls, caps, treatment, and excavation for disposal at an appropriate facility. Interim measures would be implemented between 1998 and 2005 to reduce contaminant migration below the tank farm. Cleanup of contaminated soil sites located under buildings would be coordinated with D&D, with completion of cleanup anticipated beyond 2006.

End State Assumptions

1. By 2006, all contaminated soil sites, except the tank farm and soil under buildings, would be remediated. Tank farm soil and soil under buildings would be under institutional controls to meet remedial action objectives by 2005. Institutional controls would be in place for all Waste Area Group 3 sites by 2005. Monitoring and maintenance activities will continue beyond 2006.

2. An interim remedy would be implemented at the tank farm by 2005.

3. RCRA closure of the tank farm will begin in 2009 and will be completed before 2035. This will include stabilization of the tank heels, filling the voids inside all tanks and vaults with grout, and removing all support buildings within the tank farm fence line.

4. Facilities that are immediately adjacent to the tank farm are expected to have undergone D&D by 2044.

5. A cap would be constructed over the tank farm at a point in time when the RCRA closure and D&D actions have sufficiently progressed. The cap will prevent water infiltration and exposure to contaminants at the surface. It will meet all requirements for CERCLA remediation and RCRA closure. Monitoring and maintenance of the tank farm cap would begin after completion of the cap construction. New tanks needed for the high-level waste program will not interfere with installation of the cap.

The cleanup process and end states described here are purely assumptions. Regulator or other stakeholder acceptance has not been received. A number of the assumptions involve some risk. The first end state assumption's risk is because the regulators may want to include remedial action objectives in the Record of Decision that could only be met after RCRA closure of the tank farm. If that occurs, deletion of Waste Area Group 3 from the National Priority List would not be possible until after 2035. Assumption "5" is risky in that it is contingent on regulator acceptance that installation of a final cap for CERCLA remediation of the tank farm soil would be delayed until after RCRA closure of the tank farm and surrounding facilities. Assumptions 2, 3, 4 and 5 require significant coordination of tank farm operational requirements and remediation activities from present until implementation of D&D activities.

Resolution Approach

Most of the assumptions raise issues which will require resolution through the on-going Waste Area Group 3 CERCLA process. The proposed plan and Record of Decision for Waste Area Group 3 will reflect the resolutions agreed to by the DOE, EPA, and IDHW, with other stakeholder input. Internal coordination between the Environmental Restoration Program and facility operations will occur in support of the RI/FS to better define planning assumptions and remedial alternatives. The "Compliance Re-Engineering" effort underway at the INEEL is focusing on the integration of CERCLA and RCRA, which will support its application at Waste Area Group 3.

Schedule

- The draft Waste Area Group 3 Comprehensive RI/FS will be submitted to EPA, IDHW for review on September 30, 1997.

- The Waste Area Group 3 RI/FS Report will become final on October 27, 1997.

- The proposed plan will become final on January 13, 1998, with the public comment period beginning on January 20, 1998.

- The Draft Record of Decision will be submitted to the EPA and IDHW for review on July 31, 1998.

- The Record of Decision will become final on September 16, 1998, at which time the resolutions to the above issues can be considered complete.

Participants

The Environmental Restoration Program is implementing the Waste Area Group 3 Comprehensive RI/FS, proposed plan, and Record of Decision. The DOE decision-maker is Nolan Jensen (DOE-ID). Key stakeholders include the EPA and IDHW, as described above. Other DOE and Lockheed Martin Idaho

Technologies Company programs will support coordination activities for the RI/FS, including facility staff, the high-level waste program, and regulatory compliance staff.

Analysis/Documentation

As indicated above, the Waste Area Group 3 Comprehensive RI/FS, the proposed plan, and the Record of Decision will document the analysis of alternatives for remediation, including consideration of coordination activities.

Stakeholder Involvement

Stakeholders will be involved through the normal CERCLA process. The EPA and IDHW will participate in the development of documents and strategies as provided for in the Federal Facility Agreement and Consent Order. The INEEL Site-Specific Advisory Board (SSAB) will be involved in discussions over the planning assumptions prior to finalization of any decisions. The public and other stakeholders will participate through the public comment periods, as established in the INEEL Community Relations Plan.

A list of proposed alternatives for evaluation in the Feasibility Study was taken before the SSAB in January, 1997. The Board's recommendation on these alternatives will be solicited during the March, 1997 SSAB meeting.

Opportunities to brief interested parties will be solicited by DOE-Idaho. Additional contacts will be coordinated between DOE-Idaho and the Shoshone-Bannock Tribes. Technical briefings will be offered to the Tribal Council, the Tribe's technical staff and to Tribal members.

Articles concerning this topic will be covered in bi-monthly issues of the *INEEL Reporter*, which is distributed to 6,800 readers.

Draft Action Plan
for

National Priorities List Deletion Strategy

Date: February 20, 1997

Issue No.: 15.8

Source of Issue: Idaho Ten-Year Plan Letter of October 3, 1996

Issue: The plan for deletion or partial deletion from the National Priorities List and release of portions of the INEEL from Environmental Management control must be included in the Ten-Year Plan. Partial deletion of major portions of the INEEL can be accomplished by 2006. Final deletion of the INEEL from the National Priorities List will occur post 2046, when all long-term response actions under CERCLA are completed.

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Approved by DOE-Idaho Operations Office:

DOE-Idaho Program Manager	Jerry L. Lyle Assistant Manager Office of Program Execution

The proposed resolution is in accordance with the Ten-Year Plan Guidance dated December 20, 1996.

National Priorities List
Deletion Strategy

Issue: 15.8

Issue Statement

Issue Statement

The plan for deletion or partial deletion from the National Priorities List and release of portions of the INEEL from Environmental Management control must be included in the Ten-Year Plan. Partial deletion of major portions of the INEEL can be accomplished by 2006. Final deletion of the INEEL from the National Priorities List will occur post 2046, when all long term response actions under CERCLA are completed.

Background

There is currently no regulatory driver for partial deletion, nor is there complete regulator acceptance of the concept of partial deletion at the INEEL. The INEEL Federal Facility Agreement and Consent Order was written such that there would be a single, final National Priorities List deletion event, once all remedial actions have been completed. No date was set in the Federal Facility Agreement and Consent Order for final deletion. Operating facilities are co-located with some CERCLA sites (such as the Idaho Chemical Processing Plant Tank Farm, facilities to be decontaminated and dismantled, and the active low-level waste disposal portion of the Radioactive Waste Management Complex). The cleanup of CERCLA sites associated with operating facilities may be delayed until facility closure. These constraints could prove to be barriers to achieving the goal of early deletion of the INEEL from the National Priorities List. Final deletion of the INEEL from the National Priorities List is not likely to be possible by 2006, but partial deletion is possible for certain areas.

Planning Assumptions

Proposals and open issues:

- Partial deletion(s) prior to 2006 will be accomplished as individual Waste Area Groups complete CERCLA remedial action. The first partial deletion could be initiated as early as 2002, and may include Waste Area Groups 1 (surface sites only), 2, 4, 5, 6, and 10. (Note: Waste Area Groups 8, Naval Reactors Facility, and 9, Argonne National Laboratory-West, are not administered or managed by DOE-Idaho.)

- The entire site cannot be deleted from the National Priorities List by 2006 because certain remedial actions and Long-Term Response Actions will continue, some under Environmental Management control. Key assumptions include:

    1. The groundwater pump and treat remedy at Waste Area Group 1 will continue in an operations and maintenance phase as a Long-Term Response Action until at least 2026. The remedial action will continue through natural attenuation until the

cleanup levels specified in the Record of Decision are met, which will be sometime after 2026. The operable unit will be eligible for deletion once the cleanup levels are achieved.

2. Retrieval and treatment of the pits and trenches at Waste Area Group 7 will continue until approximately 2023 as an active remedial action. The operable unit will be eligible for National Priorities List deletion at that time.

3. The Record of Decision for the Tank Farm at Waste Area Group 3 will indicate that final action on the Tank Farm soils must be postponed until after the High-Level Waste Program completes Tank Farm closure. The cleanup of Tank Farm soil under CERCLA will be completed in 2046. The operable unit will then be eligible for NPL deletion.

- The assumptions noted in the previous bullet form the basis for the determination that final deletion of the INEEL from the National Priorities List is not possible until after 2046. This Action Plan is therefore focused on a partial deletion strategy.

  (Note: Because of the high risk of these assumptions, implementation is not currently reflected in the Ten Year Plan scope, schedule, and budget for affected projects. Incorporation of these changes will await resolution of final stakeholder comments on the Ten Year Plan.)

- In order to initiate deletion of any operable unit, all remedial actions (including Long-Term Response Actions) must be completed and the final "Close Out Reports" submitted to EPA and IDHW.

- Long-Term Response Actions and other operation and maintenance actions (e.g., monitoring) will be turned over to organizations other than Environmental Management for implementation and final close out at non-Environmental Management facilities.

- At all applicable Waste Area Groups, CERCLA Records of Decision will be written such that remediation of certain sites will be postponed until facility closure where the cleanup action would interfere with current operations or facilities. This postponement will delay deletion from the National Priorities List until after facility closure and cleanup completion.

Decisions:

- D&D activities and RCRA closures were not considered in the determination that most Waste Area Groups will be eligible for partial deletion from the National Priorities List before 2006. The partial deletion strategy is based on the scope of the Federal Facility Agreement and Consent Order as it currently stands. It may prove advantageous from a cost and coordination perspective to add certain D&D or RCRA sites to the CERCLA process under the Federal Facility Agreement and Consent Order. If such sites are added, the proposed schedule for partial National Priorities List deletion by 2006 may require modification.

Resolution Approach

DOE, EPA, and IDHW have initiated a team effort to address National Priorities List deletion issues at the INEEL. This team is examining issues such as the definition of the INEEL National Priorities List site, the possibility of partial deletion, RCRA/CERCLA integration impacts on deletion, and the impacts of co-located facilities on deletion. The team has developed a proposed administrative process for National Priorities List deletion. This team will propose whether partial deletion is desirable and, if so, the strategy for partial deletion. The results of the team effort will be proposed to the DOE, EPA, and IDHW Federal Facility Agreement and Consent Order Project Managers for approval. The proposal may be reviewed by the INEEL Site Specific Advisory Board.

Once approved, the process will be incorporated into the ongoing CERCLA activities at the site. A plan will be developed to implement the strategy.

Schedule

The team has completed a draft of the administrative process for National Priorities List deletion at the INEEL. This was submitted to the DOE, EPA, and IDHW Federal Facility Agreement and Consent Order Project Managers in February, 1997. The strategy for INEEL National Priorities List deletion will be submitted to the DOE, EPA, and IDHW Federal Facility Agreement and Consent Order Project Managers as early as April, 1997. Once the strategy is approved, a plan for implementing the strategy would be completed as early as September 30, 1997.

Participants

Team Members: Nolan Jensen, DOE-Idaho; Lorie Cahn, Lockheed Martin Idaho Technologies Company (including subcontract support); Matt Wilkening, EPA Region 10; and Margie English, IDHW.

Decision Makers: Nolan Jensen, DOE-Idaho; Wayne Pierre, EPA Region 10; and Dean Nygard, IDHW.

Analysis/Documentation

The analyses to be undertaken are described in general under “Resolution Approach,” above. Additional factors to be weighed in deciding to proceed with a partial deletion strategy include cost effectiveness, political benefits, the most appropriate way to divide up the site, and surface versus groundwater considerations.

The documentation that will be produced includes: Administrative Aspects of National Priorities List Deletion at the INEEL; National Priorities List Deletion Strategy; and National Priorities List Deletion Plan.

Stakeholder Involvement

As described above, the primary stakeholders involved in the development of the National Priorities List deletion strategy are the EPA and IDHW. If the DOE, EPA, and IDHW decision-makers determine it to be appropriate, the strategy may be brought before the INEEL SSAB for review prior to finalization. In any case, the deletion of any site at the INEEL from the National Priorities List will follow EPA's National Priorities List deletion process, including the solicitation of public comment, and notification of the Natural Resources Trustees. Section 300.425(e)(4) of the National Contingency Plan identifies the requirements for public participation in the National Priorities List deletion process. In addition, EPA's *Procedures for Completion and Deletion of National Priorities List Sites* (OSWER Directive 9320.2-3A, B, C) further describes the public participation process.

For a site to qualify for National Priorities List deletion, the remedial action objectives that were established in Records of Decision must be met, and the site must be protective of human health and the environment across all pathways of exposure. This tie to CERCLA Record of Decisions translates to stakeholder participation in the development of the criteria for National Priorities List deletion for each site at the INEEL. The assumptions described above will be addressed through the corresponding RI/FS and Record of Decision processes, in accordance with the existing schedules in the Federal Facility Agreement and Consent Order.

Draft Action Plan

for

INEEL High-Level Waste

Date: February 20, 1997

Issue No.: 20.9

Source of Issue: Idaho Ten-Year Plan Letter of October 3, 1996

Issue: "While continued calcination of the liquid high-level waste should remain as the near-term strategy, conduct an analysis to evaluate potential accelerated separations and final waste form alternatives. The final form should not be limited to vitrified glass unnecessarily."

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The proposed resolution is in accordance with the Ten-Year Plan Guidance dated December 20, 1996.

HIGH-LEVEL WASTE ISSUE
RESOLUTION AND ACTION PLAN

Issue: 20.9

Background

Irradiated nuclear fuel has been reprocessed at the Idaho Chemical Processing Plant since 1953 to recover uranium-235 and krypton-85 for the U. S. Department of Energy. The resulting acidic high-level liquid radioactive waste has been solidified to a high-level waste calcine since 1963 and stored in stainless steel bins enclosed by concrete vaults. Residual high-level liquid radioactive waste and radioactive sodium bearing liquid waste are stored in stainless-steel tanks contained in concrete vaults.

In April, 1992, DOE announced that spent fuel would no longer be reprocessed to recover enriched uranium and called for a shutdown of the reprocessing facilities at the Idaho Chemical Processing Plant. Since that time, no more high-level waste has been (or will be) generated and nearly all of the high-level liquid radioactive waste has been calcined.

Approximately 1,085 cubic meters of high-level liquid radioactive waste remain to be calcined; the current calcine inventory is approximately 3,800 cubic meters. The tank farm also contains about 5,500 cubic meters of sodium bearing waste, which was produced during decontamination and other incidental plant operations rather than during spent nuclear fuel reprocessing.

The plan for treating the high-level waste as presented in the Ten-Year Plan would be to continue the calcination process through 2012 to empty the Tank Farm; collect newly generated waste in RCRA compliant tanks from 2013 to 2020; and treat the newly generated liquid waste and existing calcine using a new facility beginning in 2020. The proposed treatment method would consist of calcine retrieval, calcine dissolution, separation of the liquid (either liquid waste or dissolved calcine) into high- and low-activity portions, grouting of the low-activity portion, and vitrification of the high-activity portion. This process would be complete in 2035 so that the high-level waste would be ready to be shipped to a geologic repository. Although this is a possible approach, it has some disadvantages; the major one is that it has a significantly greater life-cycle cost than other possible alternatives.

Issue Statement

While continued calcination of the liquid high-level waste should remain as the near-term strategy, conduct an analysis to evaluate potential accelerated separations and final waste form alternatives. The final waste form should not be limited to vitrified glass unnecessarily.

Planning Assumption

Although this issue was raised during reviews of the Ten-Year Plan, it is not a new issue. The Department of Energy and its contractors (previously Westinghouse Idaho Nuclear Company; currently Lockheed Martin Idaho Technologies Company) have been working on this issue since the decision was made in 1992 to discontinue fuel reprocessing. Two major studies have been completed to determine the preferred

method for treating the Idaho Chemical Processing Plant high-level waste inventory. These studies are reported in two documents:

1. W. B. Palmer et al., "ICPP Tank Farm Systems Analysis," WINCO-1192, January 1994.

2. James A. Murphy et al., "ICPP Radioactive Liquid and Calcine Waste Technologies Evaluation Final Report and Recommendation," INEL.-94/0119, April 1995.

Each study came to a similar conclusion: to meet regulatory requirements[a] and minimize life-cycle costs of the waste treatment process, two major actions should occur. The first action would be to initiate high-level liquid waste evaporator operation and continue calciner operation for approximately two campaigns. The second action would be to construct and operate a new treatment facility as soon as possible to immobilize current as well as future wastes. The only significant difference in the recommendations in the two documents was that the later study recommended the immobilization facility be built in two phases to flatten the cost as a function of time. The first phase would treat only the liquid waste and would consist of radionuclide separations and grouting. The second phase would consist of calcine dissolution, solids/liquid separations, and vitrification.

Since these studies were completed, several other studies[b] have been performed to define the technologies which would be used to carry out these process steps. In addition, other studies have been conducted to improve upon the basic scenario described above. For example, shipping the high activity portion to another site to be vitrified was investigated so that a vitrification process would not have to be built at the INEEL. Additional studies are being conducted to assure all reasonable alternatives are addressed.

Until this issue is resolved, the planning assumption for the Ten-Year Plan will be based on a dual approach of pursuing both Calcination and Separations options until 1999 and the Calcination option after 1999.

Resolution Approach

The National Environmental Policy Act process will be used to resolve this issue. Specifically, the Environmental Impact Statement Record of Decision is being moved ahead from 2009, as required by the Settlement Agreement, to completion in 1999 to support the requirement to commence negotiating a plan for calcine treatment with the State of Idaho by the end of 1999. In the Environmental Impact Statement, the various alternatives will be described and their environmental impacts evaluated. The Environmental Impact Statement will be reviewed by the decision makers and other stakeholders, including the State of Idaho. From this review-and-comment process will evolve the path forward for the INEEL high-level waste.

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a. The major regulatory milestones for the INEEL High-Level Waste Program are provided in Table 1.

b. A bibliography of these studies is provided in Table 2.

Schedule

11/96	Brief State INEEL Oversight group on proposal (complete)
11/96 and 1/97	Brief INEEL Site Specific Advisory Board on proposal (complete)
2/97	Brief state regulators on proposal (complete)
2/97	Brief DOE senior management on proposal (complete)
3/97	Conduct high-level waste open house
4/97	Status high-level waste Steering Committee (Oak Ridge)
4/97	Brief Shoshone-Bannock Tribes
9/97	Environmental Impact Statement Scoping Meeting (stakeholder input)
9/97	DOE senior management decision on preferred alternative (decision point)
12/98	Draft Environmental Impact Statement (decision point for preferred alternative)
1/99-3/99	Environmental Impact Statement public comment period (stakeholder input)
6/99	Final Environmental Impact Statement (stakeholder input)
7/99	Record of Decision (decision point)

Participants

The major participants in this decision-making process are the DOE-ID High-Level Waste Program (P. J. Dirkmaat, T. L. Wichmann), the Lockheed Martin Idaho Technologies Company High-Level Waste Program (A. M. Jensen, J. H. Valentine), the State of Idaho (both the oversight and regulatory personnel), and the INEEL Environmental Management Site Specific Advisory Board. The DOE is responsible for the overall direction of the decision-making process, coordinating the decision with DOE-HQ, contracting the Environmental Impact Statement, communicating with the stakeholders, and arranging the funds to carry out the required activities. Lockheed Martin Idaho Technologies Company is responsible for developing the data required to support the decision-making process and the Environmental Impact Statement, performing the technical development work required for facility design, managing the project activities related to the new facilities, and startup and operation of the new facilities. The State and the Site Specific Advisory Board are being included in current discussions regarding the high-level waste path forward and they will be an integral part of the Environmental Impact Statement review process which will lead to the final treatment decision. The State has approval authority for the necessary permits for treatment of the hazardous components.

Analysis/Documentation

The bulk of the analyses and documentation related to various treatment scenarios has been completed and documented (Table 2). The major documents remaining to be developed are the feasibility studies for calcine treatment, the Environmental Impact Statement, and the Record of Decision.

Stakeholder Involvement

Stakeholder involvement in decision-making for the high-level waste treatment process generally involves the formally established methods, specifically, briefings to the State of Idaho and the INEEL Site Specific Advisory Board.

Communications with the State take several forms. Routine meetings, such as the quarterly Site Treatment Plan meetings, are used to convey current status toward meeting short- and long-term waste treatment goals as well as to obtain concurrence for modification of those plans. Letters and reports are used to document meeting of milestones or conveying other information related to waste treatment. The most important method is meetings held to discuss specific issues related to treatment of waste. These meetings have occurred frequently and at various administrative levels since the decision was made to terminate fuel reprocessing. These types of meetings will continue to be held as the high-level waste treatment plan is developed. The State will be a reviewer of the Environmental Impact Statement. The State will also be the primary approver of the high-level waste treatment method since the waste contains RCRA constituents and any new process for treating it must receive proper review and approval prior to beginning operation.

The Site Specific Advisory Board holds regular meetings around the State and high-level waste treatment is often a topic of discussion. Specific presentations have been made to the board on the high-level waste treatment plan. Additional presentations will be made to the board as appropriate as the Environmental Impact Statement process progresses.

To assure all parties are satisfied with the Separations approach, a series of meetings are planned; some have been completed. The completed meetings and their results are described below.

High-Level Waste Steering Committee Meeting, October 1-3, 1996

The non-INEEL attendees at this meeting were S. P. Cowan, A. L. Watkins, J. E. Kinzer, R. E. Erickson, M. A. Hunemuller, C. E. Anderson, R. O. Ramsey, R. L. Sweeney, D. W. Geiser, and H. B. Gnann. The main purpose of the meeting was to obtain the concurrence of the High-Level Waste Steering Committee for the path forward for the INEEL high-level waste program. The history of INEEL high-level waste and the studies performed to determine treatment were provided and discussed. At the conclusion of the meeting, the committee supported the switch from Calcination to Separations and a specific plan for this change was agreed upon:

- The next version of the Ten-Year Plan (November 96) will include Calcination as the baseline with Separations as an attractive alternative to be pursued.

- The final Ten-Year Plan (February 97) to go to Congress will have separations as the baseline, assuming stakeholder acceptance is obtained.

- The Separations approach will be implemented within level funding over the Ten-Year Plan, as a planning basis, if privatized funding is made available.

In summary, the decision of the group was to pursue Separations as a planning basis assuming confirmation of cost analyses, success of stakeholder discussions, and being able to proceed within the Ten Year Plan funding assumptions.

State of Idaho, November 14, 1996

Personnel from both oversight and regulatory groups were represented at the meeting. Information on the Calcination approach and the Separations approach was presented and the proposal was made to change from Calcination to Separations. The State was initially resistant to the proposal because they had erroneously gotten the impression (from other sources) that DOE was attempting to get out of emptying the Tank Farm by 2012. They were also concerned that the change would require modification of the Settlement Agreement. After the proposal was thoroughly explained, the State personnel were receptive to the idea, particularly when they were assured that the Tank Farm would be emptied on schedule and an Environmental Impact Statement would be produced. The oversight personnel remained cautious, but agreed to further meetings; the regulatory personnel said they saw no problem to continuing toward the Separations approach.

State of Idaho, November 15, 1996

The non-INEEL attendees were Bob Ferguson (oversight) and Kathleen Trevor (state attorney general's office). The purpose of the meeting was to review the presentation that was planned for the INEEL Site Specific Advisory Board on the proposed change from Calcination to Separations. This meeting afforded the INEEL personnel the opportunity to provide additional information to the state personnel on the proposals for high-level waste treatment. Again, the state people remained open to further discussions on the revised approach.

Site Specific Advisory Board, November 19, 1996

The history and treatment for high-level waste were explained to the board. After the board understood the background, the proposal for changing from Calcination to Separations was also explained. The board had many questions, mainly focused on understanding all options considered and the criteria used to reach the preferred option, which were answered. The board did not seem to have any specific opposition to the proposal and continued their committee activities to formally develop a recommendation at their January meeting.

Army Corps of Engineers, December 3-5, 1996

One of the Corps of Engineers observations was: "The existing technical scope for the high-level waste Calcination option results in an unmanageable project beginning in year 2013." The Corps of Engineers supported the change from Calcination to Separations due to the above observation and the projected $1 billion cost savings for the Separations approach.

Site Specific Advisory Board, January 21, 1997

Based on the results of the November meeting, the Site Specific Advisory Board submitted several questions to DOE in order to support a formal recommendation in January. Hand-out material and the presentation answered the written questions. Many new questions that came up during the presentation were also answered. On January 22, the board finalized its recommendation on the INEEL high-level waste program. The main points were:

1. The Environmental Impact Statement should be completed early. It should examine a broad range of alternatives and clearly show and verify assumptions, particularly those associated with the high-level waste repository.

2. DOE should meet with the State of Idaho to resolve issues with the Settlement Agreement and the proposal.

3. Sufficient research and development funding should be authorized for both Separations and Calcination to assure the Settlement Agreement is met.

4. DOE should carefully examine, in the Environmental Impact Statement, the risks of low-activity waste disposal over the aquifer and keep the Board and the public informed as more information becomes available.

5. DOE should initiate a public involvement program as part of the Environmental Impact Statement scoping process.

State of Idaho, February 3 and 4, 1997

This meeting was the quarterly INEEL update for the State of Idaho regulators. In this two-day meeting, a presentation was given on the high-level waste regulatory issues and the proposed path forward using the Separations option. The Separations option was well received by the regulators because it is a big step forward towards reaching final forms for the wastes and it provides a direct approach to deal with RCRA constituents and will be amenable to meeting the requirements of the Clean Air Act.

INEEL Senior Management, February 25, 1997

The INEEL senior management and representatives from the State of Idaho INEEL Oversight Office and the Department of Environmental Quality toured the Idaho Chemical Processing Plant on February 25, 1997. They were given a presentation on the High-level Waste Program path forward and a demonstration of separations technology.

Table 1.
High Level Waste Regulatory Milestones FY-97 to FY-35

DATE	REQUIREMENT	SOURCE*
31 Oct 96	Commence operation of the high-level liquid radioactive waste evaporator	SA ¶E3
Q. FY 1997 (31 Mar 97)	Commence NWCF operation	STP Table 5-1
1 July 97	Solicit proposals for feasibility studies for treatment of calcined waste	SA ¶EA.
31 Dec 97	Operate the high-level liquid radioactive waste evaporator to reduce tank farm liquid waste volume by no fewer than 330,000 gallons	SA ¶E3
30 Jun 98	Calcine all remaining non-sodium bearing liquid high-level waste	SA ¶E4
31 Dec 99	Commence negotiating a plan and schedule for calcined waste treatment	SA ¶Ea.
1 Jun 01	Commence calcination of sodium bearing liquid high-level wastes	SA ¶E5
31 Mar 2009	Cease use of waste tanks contained in pillar and panel vaults	NON Consent Order
31 Dec 2009	Issue record of decision for calcined waste treatment	SA ¶Ea.
31 Dec 2012	Complete calcination of sodium bearing liquid high-level wastes	SA ¶E5
31 Dec 2035	Treat all high-level waste so that it is ready to be moved out of Idaho	SA ¶C3, ¶E1, ¶Ea.

* SA = Settlement Agreement with the State of Idaho
STP = INEL Site Treatment Plan

Table 2.
Studies Related to High-Level Waste Treatment

1. Palmer, W. B., et al., "ICPP Tank Farm Systems Analysis," WINCO-1192, Westinghouse Idaho Nuclear Company, Idaho Falls, Idaho, January 1994.

2. "Idaho Chemical Processing Plant Feasibility Design Study for the Waste Immobilization Facility", prepared by Raytheon Engineers & Constructors, Inc., October 1994.

3. "ICPP Radioactive Waste High-level Waste Immobilization Treatment Technologies-Numatec Comments and Recommendations", prepared by Numatec, Inc., January 1995.

4. Murphy, J. A., et al., "ICPP Radioactive Liquid and Calcine Waste Technologies Evaluation Final Report and Recommendation," INEL-94/0119, Idaho National Engineering Laboratory, Idaho Falls, Idaho, April 1995.

5. "Environmental Management Requirements/Defensible Costs Project Final Report", INEL-96/0101, Idaho National Engineering Laboratory, Idaho Falls, Idaho, February 1996.

6. "Technical Evaluation of Research and Development Requirements in Support of INEL ICPP Sodium Bearing Waste Treatment", prepared by Ecology and Environment, Inc., March 1996.

7. "Sodium Waste Alternative Treatment and Disposal Feasibility Study", prepared by Fluor Daniel, Inc., April 1996.

8. "Regulatory Analysis and Proposed Path Forward for the Idaho National Engineering Laboratory High-level Waste Program", DOE/ID-10544, Idaho Falls, Idaho, July 1996.

9. "High-level Waste New Facilities Evaluation Comparison Report", prepared by Numatec, Inc., August 1996.

10. "An Alternative Stabilization Method for ICPP Wastes", prepared by Ecology and Environment, Inc., November 1996.